COMMITMENT & INTEGRITY DRIVE RESULTS

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January 10, 2011

Ms. Kimberly Tisa
PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: PCB Remediation Plan
Harvard Medical School Quadrangle
Boston, Massachusetts

Dear Ms. Tisa:

On behalf of President and Fellows of Harvard College (Harvard), Woodard & Curran (W&C) has prepared this PCB Remediation Plan (the Plan) for the cleanup and disposal of polychlorinated biphenyl (PCB) wastes in accordance with 40 CFR Part 761.62 and 761.61(c). This plan details the proposed remedial approach for PCB containing materials encountered during the planning for an expansion joint replacement project associated with concrete sidewalks at Harvard Medical School's outside quadrangle (the Site) located on Longwood Avenue in Boston, Massachusetts. The remediation work will be sequenced into the planned exterior sidewalk repair project, currently scheduled to be conducted at the Site during the Spring of 2011.

This submittal includes characterization data, a discussion of remedial objectives and cleanup levels, the remedial plan, verification sampling activities, and a schedule for completing the work.

Background

The project site consists of concrete sidewalks surrounding a grassed quadrangle in between several buildings at Harvard's Medical School Quadrangle (see attached Figure 1). The sidewalks are mainly used as pedestrian walkways; however, some sections contain benches and tables where people may sit for brief periods of time. Based on the use of the area, these outside sidewalks can be considered low occupancy areas per 40 CFR 761.3. Caulking is present within the expansion joints of the sidewalks at the following locations: between concrete slabs; between concrete slabs and the adjacent buildings or retaining walls (constructed of marble); between concrete slabs and polished granite stone steps; and between concrete and metal plates within the sidewalks. Photographs of typical types of caulking are shown to the right and below.

Typical concrete-concrete sidewalk slab expansion joint

Typical concrete sidewalk slab to building stone expansion joint

The caulking is in various stages of disrepair due to weathering with some needing prompt replacement and some in good condition. Harvard has decided to replace all the caulking at the Quadrangle sidewalks, so as to have a consistent condition across the area. The linear footage corresponds to approximately 5,570 feet of caulking. The planned project scope of work is to remove the exisiting expansion joint filler and caulking, clean out any residual materials, prepare the surface for new material, and install new filler and caulking. In some isolated locations, the concrete is spalling and will be repaired/replaced.

In preparation for the projet, samples of the caulking were collected for PCB analyses (as well as asbestos) to aid in determining proper management and disposal of these materials. A discussion of the characterization sample results is presented in the following section.

Characterization Sample Results

Twelve samples of different apparent types of caulking were collected for PCB and asbestos analyses on July 20, 2010. The preliminary determination of the caulking type present at each location was limited to a visual inspection of the physical appearance of the caulking and/or its apparent consistency upon cutting or removing a portion of the material. Samples for asbestos analyses were analyzed using EPA 600/R-93/116 Method using Polarized Light Microscopy (PLM). None of the samples contained asbestos.

Upon further review of the laboratory results for PCBs (PCBs were detected in 5 of the 12 samples), sample locations, and field observations, additional samples were collected on August 13, 2010 (1 sample) and September 9, 2010 (14 samples) to confirm visual observations, caulking type, and PCB presence. In total, 26 separate caulking samples were collected and analyzed for PCBs.

All samples were transported to the laboratory under standard Chain of Custody procedures. Samples for PCB analyses were extracted using USEPA Method 3540C (Soxhlet extraction) and analyzed for PCBs using USEPA Method 8082. The laboratory reports are provided as Appendix A to this letter.

A review of the lab data was conducted and included a check of field documentation including sample collection and preservation methods, a check of the laboratory data and documentation, a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, matrix spike and matrix spike duplicate results, blank results, and laboratory control standard results, and an evaluation of sample holding times, and field duplicate results. Based on this review, the data is considered of sufficient quality for use in rendering an opinion of conditions at the Site.

The PCB results are presented on Table 1 and summarized below by joint type:

- Concrete / Retaining Wall Joints – all five samples were non-detect for PCBs (< 0.3 ppm)
- Concrete / Metal Plate Joints– both samples were non-detect for PCBs (< 0.3 ppm)
- Concrete / Granite Joints – all 5 samples detected PCBs at > 1 ppm, < 50 ppm (average = 4.6 ppm)
- Concrete / Concrete Slab Joints:
    - 4 of 9 samples detected PCBs at > 1 ppm, < 50 ppm (average = 2.2 ppm)
    - 3 of 9 samples were non-detect for PCBs (< 0.3 ppm)
    - 2 of 9 samples were < 1 ppm PCBs (average = 0.74 ppm)
- Concrete / Building Stone Joints:
    - 3 of 5 samples were non-detect for PCBs (< 0.3 ppm)
    - 1 sample detected PCBs at > 1 ppm, < 50 ppm (31. 9 ppm)
    - 1 sample detected PCBs at $\geq$ 50 ppm (84.3 ppm)

The results can be further broken down as follows:

- 15 of the 26 samples were non-detect or < 1 ppm;
- 10 of the 26 samples were > 1 ppm, < 50 ppm; and
- Only 1 of 26 samples detected PCBs $\geq$ 50 ppm.

Proposed Management and Disposal Methods

As discussed above, the determination of caulking type was limited to a visual inspection and observations of its apparent consistency. Given the majority of the caulking was similar in color and consistency, it was difficult with certainty to distinguish between different types of caulking. Based on the results from the 26 samples of caulking collected from locations spatially distributed across the area, the caulking and associated work is proposed to be separated into the following two types:

- Type 1 - Caulking with total PCBs $\geq$ 50 ppm – 1 isolated section of caulking along the concrete pad to building stone joint on the west side of the Goldenson building; this caulking will be managed and disposed of consistent with 40 CFR Part 761 requirements; and
- Type 2 - All other caulking – this caulking will be managed at it's at found concentration, either non-detect for PCBs or caulking with PCBs > 1 ppm and < 50 ppm.

The management and disposal of the Type 1 caulking will be conducted following the procedures described in 40 CFR 761.62 and 761.61(c) and a plan is presented in subsequent sections of this letter. In general, the remedial approach for each media includes the removal and disposal of the caulking as PCB bulk product waste under 40 CFR 761.62, the removal and disposal of PCB remediation waste, and a risk-based approach for the in-place management of PCB remediation waste that cannot be removed under 40 CFR 761.61(c), if present.

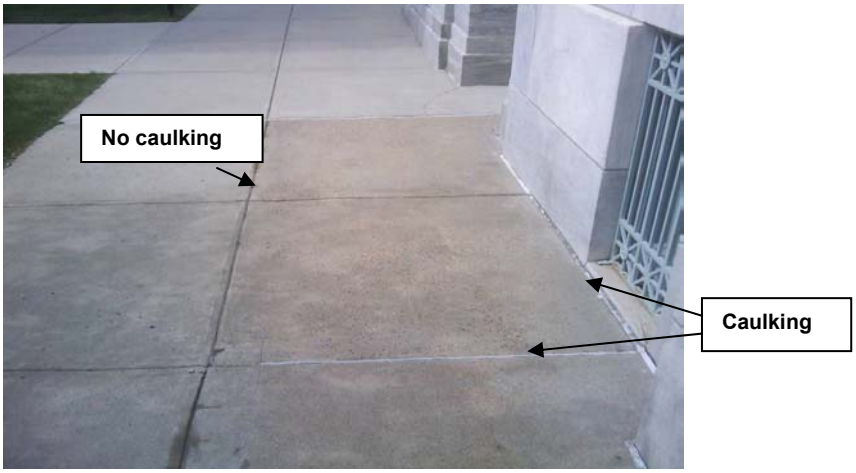
From a regulatory perspective, some of the Type 2 caulking could meet the definition of PCB Excluded Product per 40 CFR 761.3; whereas, some of the caulking (and adjacent concrete slabs) was recently replaced and the low levels of PCBs detected in this replacement caulking would not meet this definition. In addition, the majority of the caulking sample results were detected at concentrations < 25 ppm, which would be at levels below the low occupancy use cleanup level (applicable to the concrete sidewalks), if the material was considered a PCB Remediation Waste.

Given these limitations, the management and disposal of the Type 2 caulking is proposed to be conducted as follows:

- The contractor will develop a Health & Safety Plan specific to the work activities. All workers will follow applicable Federal and State regulations regarding the work activities, including but not limited to OSHA regulations, respiratory protection, and personal protective equipment (PPE), etc.
- Access to the active work areas will be controlled by the contractor through fencing, posting of signs, or other equivalent means;
- Engineering controls and/or containment measures will be implemented to control any dust or debris generated during removal activities. These controls may include the use of polyethylene sheeting or HEPA filter-equipped power tools. All work surfaces will be wetted to minimize dust during removal;
- Caulking removal shall be conducted by cutting or scraping with hand tools, or by using a mechanical caulking removal gun. No grinding or sawcutting (i.e., excessive dust-generating techniques) will be used directly on the caulking. Sawcutting for concrete repair may be needed for patchwork. If sawcutting is conducted, engineering controls (wetting and/or polysheeting) will be used to control dust;
- After removing the caulking, the underlying substrate shall be inspected and verified that all residual caulking and materials have been removed from the substrate. The vacated joint will then be filled with joint filler and replacement caulking;
- All waste containers will be properly labeled, marked, and stored on-site prior to off-site transportation; All polyethylene sheeting, PPE, and other non-liquid materials generated during the work will be placed in the same container with the caulking for disposal;
- The caulking and materials will be transported off-site for disposal at their as-found concentration (e.g., > 1 ppm, < 50 ppm) to a disposal facility/landfill permitted to accept this waste (e.g., Waste Management TREE/Turnkey facility in Rochester, NH); and
- Copies of all waste shipment records will be collected and maintained as part of the project record.

Proposed Remedial Plan for ≥ 50 ppm Caulking

The isolated area of ≥ 50 ppm caulking (total PCBs = 84.3 ppm) is shown on Figure 1 (refer also to detail provided on Figure 1) and consists of approximately 37 linear feet of caulking located at the expansion joint between the concrete sidewalk slab and the building stone and two 4.5 foot sections of caulking in between the concrete slab sections on the west side of the Goldenson building (45 total linear feet of caulking). A photograph of this area is shown below.



The photograph clearly shows two different types of concrete: an older concrete associated with the > 50 ppm caulking and another newer/replacement concrete further away from the caulking and building.

As part of this plan development, additional testing of adjacent materials to the caulking was conducted and included two samples of concrete from the adjacent sidewalk and two surface wipe samples from the marble building stone (see Figure 1). Surface wipe samples were collected from the building stone because it was a polished marble (in some areas) and destructive drilling of the stone was not allowable given the architectural significance of the building. One sample was collected from the vertical building face immediately adjacent to the horizontal caulked joint and the other sample was collected from the horizontal window sill adjacent to the caulked joint (see photograph above). A summary of the sample results is presented on Table 2 and indicated that no PCBs were detected in any of the samples at concentrations above the laboratory's reporting limits (< 0.033 ppm for concrete and < 0.5 ug/100cm^2 for surface wipes).

The following sections provide details on site preparation and control activities, the proposed remedial actions for each media, verification sampling, storage and disposal requirements, and recordkeeping requirements. In general, the remedial approach for each media includes the disposal of caulking as PCB bulk product waste under 40 CFR 761.62, the removal and disposal of PCB remediation waste, and a risk-based approach for the in-place management of PCB remediation waste that cannot be removed under 40 CFR 761.61(c), if present.

Site Preparation and Control Activities

Prior to initiating the remediation activities, the following controls will be implemented:

- The contractor will develop a Health & Safety Plan specific to the work activities. All workers will follow applicable Federal and State regulations regarding the work activities, including but not limited to OSHA regulations, respiratory protection, and personal protective equipment (PPE), etc.
- Access to the active work areas will be controlled by the contractor through fencing, posting of signs, or other equivalent means.
- Engineering controls and/or containment measures will be implemented to control any dust or debris generated during removal activities. These controls will include the use of polyethylene sheeting or HEPA filter-equipped power tools.
- All work surfaces will be wetted to minimize dust during removal.
- Air monitoring within the support work zone and perimeter to this zone will be conducted during active removal to monitor for respirable dust. Dust levels and exposures to dust will be minimized by implementing a combination of engineering controls (e.g., poly sheeting), wet work techniques, and personal protective equipment (e.g., respirators) as described above. An air monitoring plan is included as Appendix B.

Remediation and Verification

The caulking within the joint identified as containing PCBs at 84.3 ppm will be removed for disposal as PCB Bulk Product Waste in accordance with 40 CFR 761.62. Caulking removal shall be conducted by cutting or scraping with hand tools, or by using a mechanical caulking removal gun. No grinding or sawcutting (i.e., excessive dust-generating techniques) will be used directly on the caulking.

Given the concentration of PCBs reported in the caulking, it is likely that the immediately adjacent concrete sidewalk slab to the joint may also contain PCBs. Samples of the concrete at locations 4.5 feet from the joint (further edge of the pad away from the joint) were non-detect for PCBs. As such, the

plan is to remove the entire concrete pad adjacent to the caulked joint (approximately 4.5 feet away from the joint across the entire 37 linear feet length of the joint). There is not a caulked expansion joint running parallel to the building in between the two concrete sidewalk slabs (new and older concrete) comprising the sidewalk (see above photograph).

The caulking and adjacent concrete pad (approximately 3 cubic yards) will be removed for disposal together as PCB wastes > 50 ppm (see more information below on storage and disposal procedures).

Following removal of the caulking and concrete, verification samples will be collected from the soils underlying the removed concrete in accordance with Subpart O requirements (i.e., 5 ft^2 grid spacing or 1 sample beneath each concrete slab piece). This will result in the collection of seven samples for analyses. All samples will be extracted using USEPA Method 3540C (Soxhlet Extraction) and analyzed for PCBs by USEPA Method 8082.

If the results of the verification samples indicate that the soils contain PCBs > 1 ppm, soil within the affected areas will be removed and managed as PCB wastes > 1 ppm. Following removal, additional verification samples will be collected, as applicable, at an off-set grid. If all verification samples are reported with PCBs ≤ 1 ppm, no further remediation will be conducted.

After removing the caulking, the building stone will be cleaned and inspected to verify that all residual caulking has been removed from the building. Given the architectural significance of the marble building stone, removal of any marble in direct contact and adjacent to the caulking is not a feasible alternative. As indicated above, surface wipe tests from the marble immediately adjacent to the caulking were non-detect for PCBs (< 0.5 ug/100cm^2).

As such, it is proposed that following caulking removal and cleaning, the marble in former direct contact with the caulking be sampled, via a standard wipe test, to determine if PCBs are present. No additional samples of marble not in direct contact with the caulking are proposed given the previous characterization results. Verification samples specific to this remedial area will be collected at a frequency of 1 sample per every approximately 12 feet, which results in three wipe samples. All samples will be extracted using USEPA Method 3540C (Soxhlet Extraction) and analyzed for PCBs by USEPA Method 8082.

If all verification samples are reported with PCBs ≤ 10 ug/100cm^2, the high occupancy clean up level for non-porous surfaces, then no further remediation will be conducted. If the results of the verification samples indicate that PCBs are present at concentrations >10 ug/100cm^2, the associated building stone will be managed in-place as described below.

Since this portion of the marble will be positioned beneath the replacement caulking and/or below ground surface, a liquid barrier coating is proposed to be installed, as described below.

- The marble within the joint will be encapsulated with two coats of a protective epoxy or acrylic coating.
- Following coating application, baseline surface wipe samples will be collected at the same frequency described above for the initial verification samples (3 samples) to evaluate the effectiveness of the encapsulation and establish a baseline for future monitoring.
- Analytical results from the wipe samples of the coating will be evaluated to determine whether or not this task is complete; results ≤1 µg/100 cm^2 will indicate the task is complete and new caulking can be applied; results >1 µg/100 cm^2 will indicate that the coating and baseline testing process should be repeated.

Storage and Disposal

The following activities will be completed with regard to the proper storage and disposal of PCB waste:

- Secure, lined, covered, and marked waste containers (i.e., 55-gallon DOT-approved steel containers or cubic yard boxes) will be staged for the collection of PCB wastes generated during the work activities in accordance with 40 CFR 761.65.
- All containers will be properly labeled and marked in accordance with 40 CFR 761.40.
- Additional waste disposal characterization sampling (for other parameters) will be conducted as part of the disposal facility acceptance, as needed.
- All caulking and concrete (to be managed as PCB wastes > 50 ppm) will be disposed of in a hazardous waste landfill (e.g., the Chemical Waste Management facility located in Model City, New York), or equivalent.
- If any soils require removal and their PCB concentration (following verification sampling) is < 50 ppm, then this material will be disposed of in a landfill permitted to accept PCB waste > 1 and < 50 ppm (e.g., the Waste Management facility located in Rochester, NH, or equivalent).
- Upon completion of the work or when a container is considered full, the waste will be transported off-site for disposal at the landfill specified above.
- All polyethylene sheeting, PPE, and other non-liquid materials generated during the work will be placed in the same container as the associated PCB waste for off-site disposal.
- Copies of all manifests, waste shipment records, and certificates of disposal will be collected and maintained as part of the final report.

Conceptual Monitoring and Maintenance Plan

As described above, marble building stone in direct contact with the former caulking may require a managed in-place approach in accordance with 40 CFR 761.61(c). This approach removes the source material (caulking) and utilizes a physical barrier approach (epoxy or acrylic coating within the joint and new caulk installation) to eliminate the direct contact exposure pathway and migration pathways of PCBs.

If this is the case, following the completion of the remediation activities described above, a monitoring and maintenance plan (MMP) will be developed and implemented to monitor the effectiveness of the remedy for the marble remaining in place beneath the barrier. The main components of the plan are as follows:

- Visual Inspections of the encapsulated surface – to be recorded and included in a Report to the EPA. The inspections will look for signs of breakthrough in the underlying coating and/or signs of weathering or disturbance of the replacement caulking.
- Wipe Sampling of the encapsulated surface – to be collected following the standard wipe test procedures described in 40 CFR 761.123 and/or an alternate proposed method; results to be included in a Report to the EPA.
- Reporting – a report documenting the findings of the visual inspections and wipe testing will be prepared and submitted to EPA.

- Corrective Actions – if results of the sampling indicate that PCB concentrations in excess of the established action levels are present on the surface of the encapsulated areas, corrective measures shall be taken.

- Maintenance Guidelines and Procedures – to prevent potential exposure to maintenance and facility personnel, guidelines and procedures will be developed and implemented for any work being conducted in the encapsulated area. These guidelines and procedures will detail communications procedures, worker protection requirements, and worker training requirements to be conducted for maintenance or other activities in these areas.

The details of the MMP will be developed after completion of the remedial activities described herein, if needed.

Recordkeeping and Documentation

Following completion of the work activities, records and documents per 40 CFR Part 761 will be generated and maintained at one location. A final report documenting the completion of the work activities, verification analytical results, volumes of disposed materials, and waste disposal records will be prepared and submitted to EPA. This report will also include any necessary deed notices, if required, as part of the risk-based approach.

Schedule

Caulking replacement activities are currently planned to take place in the Spring of 2011, of which the proposed remediation components, as described in this letter, will also be conducted.

If you have any questions or require further information, please feel free to contact me at (978) 557-8150 or at jhamel@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Jeffrey A. Hamel, LSP, LEP
Senior Vice President

cc: Michael Nazzaro, Harvard Medical School
Gordon Reynolds, Harvard EHS

Enclosures: Table 1 – Initial Caulking Inspection and Analytical Data Summary
Table 2 – Adjacent Building Materials - Analytical Data Summary
Figure 1 – Site Plan and Sample Locations
Appendix A – Laboratory Analytical Data
Appendix B – Air Monitoring Plan

Table 1
Initial Caulking Inspection and Analytical Data Summary
Harvard Medical School Quadrangle - Boston, Massachusetts

Sample ID	Joint Type	Nearest Building	Total PCBs	Comment
HMS-QD-008	Concrete / Retaining Wall	Goldenson	<0.360	All tested concrete / retaining wall joints were ND for PCBs.
HMS-QD-007	Concrete / Retaining Wall	Goldenson	<0.330	
HMS-QD-009	Concrete / Retaining Wall	Goldenson	<0.360	
HMS-QD-022	Concrete / Retaining Wall	"C" Building	<0.330	
HMS-QD-026	Concrete / Retaining Wall	TMEC	<0.200	
HMS-QD-013	Concrete / Metal	"C" Building	<0.360	All tested concrete / metal joints were ND for PCBs.
HMS-QD-016	Concrete / Metal	Armenise	<0.230	
HMS-QD-005	Concrete / Building Wall	Armenise	<0.330	Concrete / building wall joints along Goldenson and Armenise were ND for PCBs.
HMS-QD-017	Concrete / Building Wall	Goldenson	<0.200	
HMS-QD-014	Concrete / Building Wall	"C" Building	<0.360	Concrete / building wall joints along "C" Building and Link were ND for PCBs.
HMS-QD-025	Concrete / Building Wall	TMEC	**31.9**	Only one sample from a building wall to concrete pad joint in the main Quad area detected PCBs. Concrete / building wall joint along TMEC.
HMS-QD-010	Concrete / Building Wall	Goldenson	**84.3**	Unique caulking at this location is a PCB waste under 40 CFR 761; proximate materials - concrete bulk samples were ND and marble building stone surface wipes were ND (refer to Table 2).
HMS-QD-001	Concrete / Granite	Armenise	**12.8**	All tested concrete / granite joints contain low-level PCBs.
HMS-QD-002	Concrete / Granite	Armenise	**4.62**	
HMS-QD-018	Concrete / Granite	Gordon Hall	**1.81**	
HMS-QD-020	Concrete / Granite	"C" Building	**1.43**	
HMS-QD-027	Concrete / Granite	TMEC	**2.50**	

Table 1
Initial Caulking Inspection and Analytical Data Summary
Harvard Medical School Quadrangle - Boston, Massachusetts

Sample ID	Joint Type	Nearest Building	Total PCBs	Comment
HMS-QD-004	Concrete / Concrete	Armenise	**2.08**	Concrete / concrete joints at the Longwood end of Armenise contain low-level PCBs. May extend to first three pads from stairs; caulking at concrete to granite joint also detected PCBs.
HMS-QD-015	Concrete / Concrete	Armenise	**2.38**	
HMS-QD-006	Concrete / Concrete	Link	<0.330	Concrete / concrete joints
HMS-QD-028	Concrete / Concrete	Gordon Hall	<0.150	
HMS-QD-019	Concrete / Concrete	Gordon Hall	0.847	
HMS-QD-021	Concrete / Concrete	"C" Building	**1.82**	
HMS-QD-023	Concrete / Concrete	TMEC	<0.140	Concrete / concrete joints
HMS-QD-012	Concrete / Concrete	Gordon Hall	0.633	
HMS-QD-011	Concrete / Concrete	Gordon Hall	**2.66**	

Notes:
All samples were extracted by USEPA Method 3540C (Soxhlet) and analyzed by USEPA Method 8082. Concentrations are presented in milligrams per kilogram (mg/kg).
All PCB sample results were reported as Aroclor 1254.
"<" indicates PCBs were not detected above the lab's minimum reporting limit, as indicated.

Table 2
Adjacent Building Materials - Analytical Data Summary
Harvard Medical School Quadrangle - Boston, Massachusetts

Media	Sample ID	Location	Total PCBs Bulk Samples (mg/kg)	Total PCBs Surface Wipe (ug/100cm^2)
Caulking	HMS-QD-010	Concrete/building joint at the upper level (south side) of Goldenson	**84.3**	--
Concrete	HMS-QD-029	Southern edge (4.5 feet from caulked joint) of first concrete sidewalk pad adjacent to Goldenson; 3rd pad from northwestern corner of the building	< 0.033	--
Concrete	HMS-QD-030	Southern edge (4.5 feet from caulked joint) of first concrete sidewalk pad adjacent to Goldenson; 6th pad from northwestern corner of the building	< 0.033	--
Marble	HMS-QD-031	Horizontal window sill set into building façade, above caulked joint; 2" x 7.5" sample; 21' from western corner of the building	--	< 0.5
Marble	HMS-QD-032	Vertical building façade; 2" high x 7.5" long sample immediately above caulked joint; 18' from western corner of the building	--	< 0.5

Notes:

1. Bulk sample results are presented in milligrams per kilogram (mg/kg).
2. Surface wipe sample results are presented in micrograms per 100 square centimeters (ug/100cm^2).
3. All samples were extracted by USEPA Method 3540C (Soxhlet) and analyzed by USEPA Method 8082.
4. All PCB sample results were reported as Aroclor 1254.
5. "<" indicates PCBs were not detected above the lab's minimum reporting limit, as indicated.

"C" BUILDING

LINK

TMEC

GORDON HALL

ARMENISE

LINK

LAWN AREA

LAWN AREA

LAWN AREA

LAWN AREA

LAWN AREA

LAWN AREA

SAW CUT NEW EXPANSION JOINT

QD-012 (0.633)

QD-021 (1.82)

QD-013 (<0.360)

QD-014 (<0.360)

QD-025 (3.19)

QD-027 (2.50)

(1.43) QD-020

(<0.330) QD-022

(<0.140) QD-023

QD-026 (<0.200)

QD-019 (0.847)

QD-018 (1.81)

TOP: QD-007 (<0.033)
BOTTOM: QD-008 (<0.360)

(<0.150) QD-028

QD-029 (<0.033)

QD-011 (2.66)

QD-009 (0.360)

(<0.200) QD-017

QD-006 (<0.330)

QD-016 (<0.23)

QD-015 (2.38)

QD-004 (2.08)

QD-002 (4.62)

QD-001 (12.8)

QD-005 (<0.330)

(84.3) QD-010

QD-032 (<0.5)

QD-031 (<0.5)

QD-030 (<0.033)

SEE PCB > 50 ppm REMOVAL DETAIL

LONGWOOD AVENUE

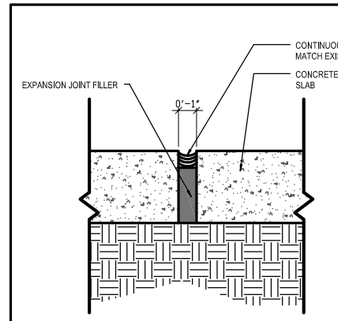
DN

REPAIRS LEGEND

	CONCRETE SIDEWALK REPAIRS
	EXISTING EXPANSION JOINT

0 50 100

SCALE IN FEET



SIDEWALK EXPANSION JOINT REPLACEMENT DETAIL - SLAB TO SLAB

PCB > 50 ppm REMOVAL DETAIL

SCALE: 1" = 20'

> 50 ppm CAULKING

CONCRETE SLABS TO BE REMOVED

LEGEND

QD-013 ●	CAULKING SAMPLE LOCATION AND IDENTIFIER
(<0.360)	SAMPLE CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/kg)
QD-029 ▲	CONCRETE SAMPLE LOCATION AND IDENTIFIER
QD-031 ■	WIPE SAMPLE LOCATION AND IDENTIFIER
	METAL PLATE

NOTE: BASEMAP BASED ON "DRAWING A1, PROJECT NUMBER 0257.015, PREPARED BY WINTER STREET ARCHITECTS, FOR HARVARD MEDICAL SCHOOL, DATED MAY 21, 2010".

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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

SITE PLAN AND SAMPLE LOCATIONS

DESIGNED BY: EVR
DRAWN BY:
CHECKED BY: JAH
Figure 1.dwg

HARVARD MEDICAL SCHOOL
QUADRANGLE SIDEWALK REPAIRS

JOB NO: 223586
DATE: NOVEMBER 2010
SCALE: AS NOTED

FIGURE 1

APPENDIX A – LABORATORY ANALYTICAL REPORTS

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

July 30, 2010

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

RE: Analytical Results Case Narrative
Analytics # 67290
HMS-QUAD Project No:223586

Dear Mr. Franklin;

Enclosed please find the analytical results for samples submitted for the above-mentioned project. The attached Cover Page lists the sample IDs, Lab tracking numbers and collection dates for the samples included in this deliverable.

Samples were analyzed for Polychlorinated Biphenyls (PCBs) by EPA Method 8082.

Unless otherwise noted in the Non-conformance Summary listed below, all of the quality control (QC) criteria including initial calibration, calibration verification, surrogate recovery, holding time and method accuracy/precision for these analyses were within acceptable limits.

This Level II data package has been assembled in the following order:

Case Narrative/Non-Conformance Summary
Sample Log Sheet - Cover Page
PCB Form 1 Data Sheet for Samples and Blanks
Chromatograms
PCB Form 10 Confirmation Results
PCB Form 3 MS/MSD (LCS) Recoveries
Chain of Custody (COC) Forms

QC NON-CONFORMANCE SUMMARY

Sample Receipt:
No exceptions.

PCBs by EPA Method 8082:
No results were reported below the quantitation limit.

Samples 67290-1 and 67290-10 required dilution due to the concentrations of PCBs detected in the samples.

Several samples had surrogate recoveries outside the laboratory acceptance criteria due to sample matrix affect (see form2). Results were reported with a comment to this affect.

If you have any questions on these results, please do not hesitate to contact me.

Sincerely,
ANALYTICS Environmental Laboratory, LLC

Stephen L. Knollmeyer
Laboratory Director

analytics environmental laboratory LLC

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Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

Report Number: 67290

Revision: Rev. 0

Re: HMS-QUAD (Project No: 223586)

Enclosed are the results of the analyses on your sample(s). Samples were received on 21 July 2010 and analyzed for the tests listed. Samples were received in acceptable condition, with the exceptions noted below or on the chain of custody. These results pertain to samples as received by the laboratory and for the analytical tests requested on the chain of custody. The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. Please see individual reports for specific methodologies and references.

Sample Analysis: The attached pages detail the Client Sample IDs, Lab Sample IDs, and Analyses requested

Sample Receipt Exceptions: None

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Virginia, Maryland, and is accredited by the Deparment of Defense (DOD) ELAP program. A list of actual certified parameters is available upon request.

If you have any questions on these results, please do not hesitate to contact us.

Authorized signature _____
Stephen L. Knollmeyer Lab. Director

Date 07/30/2010

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CLIENT: Woodard & Curran **REPORT NUMBER: 67290** **REV: Rev. 0**

PROJECT: HMS-QUAD (Project No: 223586)

Lab Number	Sample Date	Station Location	Analysis	Comments
67290-1	07/20/10	HMS-QD-001	EPA 8082 (PCBs only)	
67290-2	07/20/10	HMS-QD-002	EPA 8082 (PCBs only)	
67290-3	07/20/10	HMS-QD-003	EPA 8082 (PCBs only)	
67290-4	07/20/10	HMS-QD-004	EPA 8082 (PCBs only)	
67290-5	07/20/10	HMS-QD-005	EPA 8082 (PCBs only)	
67290-6	07/20/10	HMS-QD-006	EPA 8082 (PCBs only)	
67290-7	07/20/10	HMS-QD-007	EPA 8082 (PCBs only)	
67290-8	07/20/10	HMS-QD-008	EPA 8082 (PCBs only)	
67290-9	07/20/10	HMS-QD-009	EPA 8082 (PCBs only)	
67290-10	07/20/10	HMS-QD-010	EPA 8082 (PCBs only)	
67290-11	07/20/10	HMS-QD-011	EPA 8082 (PCBs only)	
67290-12	07/20/10	HMS-QD-012	EPA 8082 (PCBs only)	
67290-13	07/20/10	HMS-QD-013	EPA 8082 (PCBs only)	

Surrogate Compound Limits

Matrix: / Units:	Aqueous % Recovery	Solid % Recovery	Method
Volatile Organic Compounds - Drinking Water			
1,4-Difluorobenzene	70-130		EPA 524.2
Bromofluorobenzene	70-130		
1,2-Dichlorobenzene-d4	70-130		
Volatile Organic Compounds			
1,2-Dichloroethane-d4	70-120	70-120	EPA 624/8260B
Toluene-d8	85-120	85-120	
Bromofluorobenzene	75-120	75-120	
Semi-Volatile Organic Compounds			
2-Fluorophenol	20-110	35-105	EPA 625/8270C
d5-Phenol	15-110	40-100	
d5-nitrobenzene	40-110	35-100	
2-Fluorobiphenyl	50-110	45-105	
2,4,6-Tribromophenol	40-110	40-125	
d14-p-terphenyl	50-130	30-125	
PAH's by SIM			
d5-nitrobenzene	21-110	35-110	EPA 8270C
2-Fluorobiphenyl	36-121	45-105	
d14-p-terphenyl	33-141	30-125	
Pesticides and PCBs			
2,4,5,6-Tetrachloro-m-xylene (TCX)	46-122	40-130	EPA 608/8082
Decachlorobiphenyl (DCB)	40-135	40-130	
Herbicides			
Dichloroacetic acid (DCAA)	30-150	30-150	
Gasoline Range Organics/TPH Gasoline			
Trifluorotoluene TFT (FID)	60-140	60-140	MEDEP 4217/EPA 8015
Bromofluorobenzene (BFB) (FID)	60-140	60-140	
Trifluorotoluene TFT (PID)	60-140	60-140	
Bromofluorobenzene (BFB) (PID)	60-140	60-140	
Diesel Range Organics/TPH Diesel			
m-terphenyl	60-140	60-140	MEDEP 4125/EPA 8015/CT ETPH
Volatile Petroleum Hydrocarbons			
2,5-Dibromotoluene (PID)	70-130	70-130	MADEP VPH May 2004 Rev1.1
2,5-Dibromotoluene (FID)	70-130	70-130	
Extracatable Petroleum Hydrocarbons			
1-chloro-octadecane (aliphatic)	40-140	40-140	MADEP EPH May 2004 Rev1.1
o-Terphenyl (aromatic)	40-140	40-140	
2-Fluorobiphenyl (Fractionation)	40-140	40-140	
2-Bromonaphthalene (fractionation)	40-140	40-140	

PCB
DATA SUMMARIES

analytics environmental laboratory LLC

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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: Lab QC

SAMPLE DATA

Lab Sample ID: B072110PSOX
Matrix: Soil
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	93	%
Decachlorobiphenyl	78	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

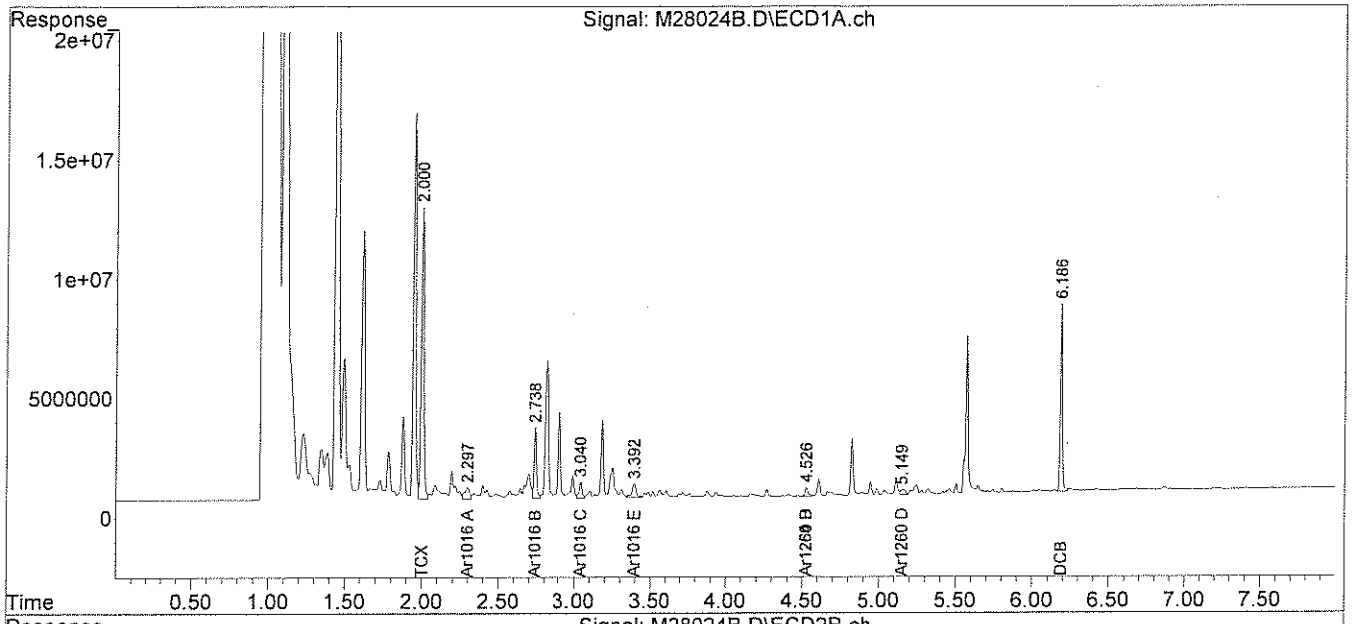
Authorized signature

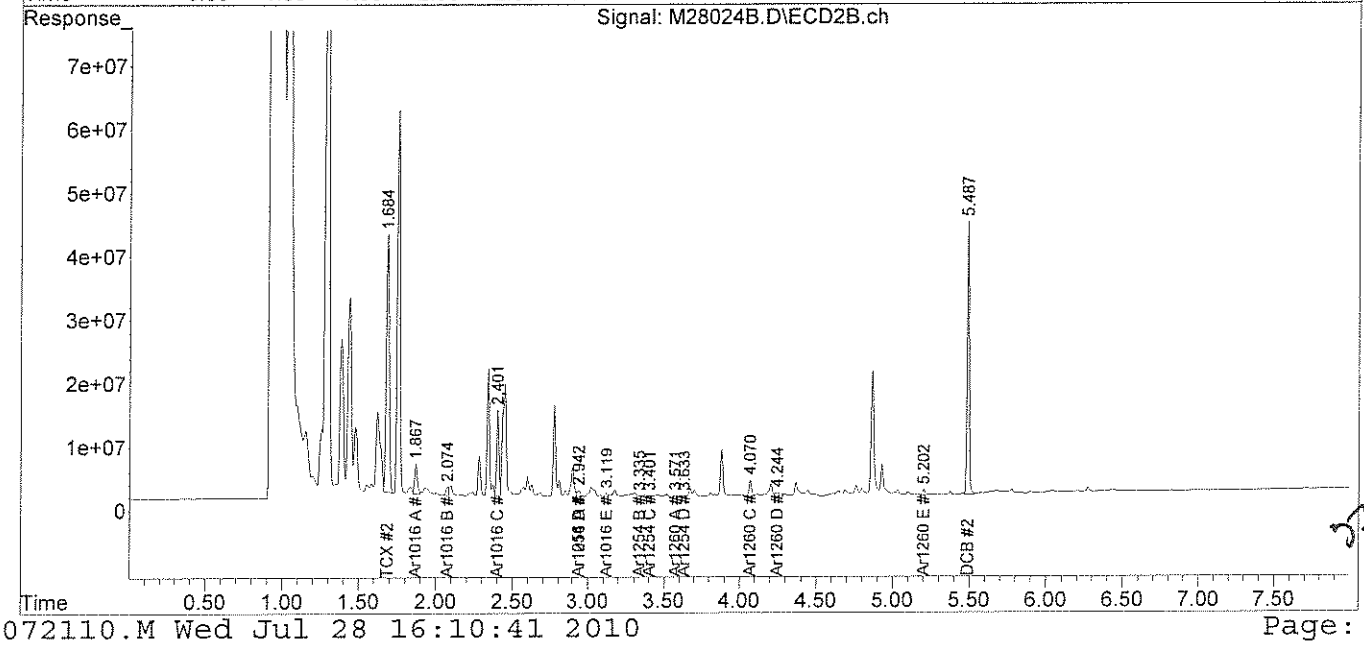
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28024B.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 7:20 pm
Operator : JK
Sample : B072110PSOX,,A/C
Misc : SOIL
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 28 15:50:16 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:28 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: Lab QC

SAMPLE DATA

Lab Sample ID: B072610PSOX2 RR
Matrix: Soil
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 07/26/10
Analysis Date: 07/28/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	82	%
Decachlorobiphenyl	70	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

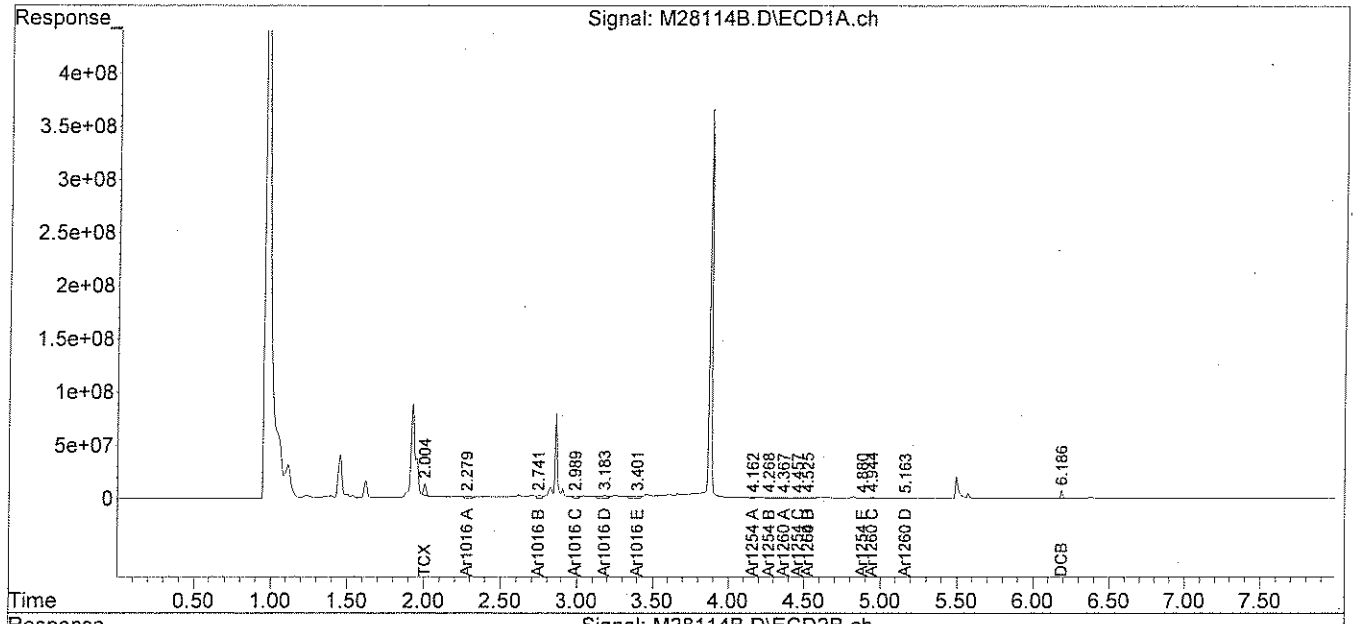
Authorized signature

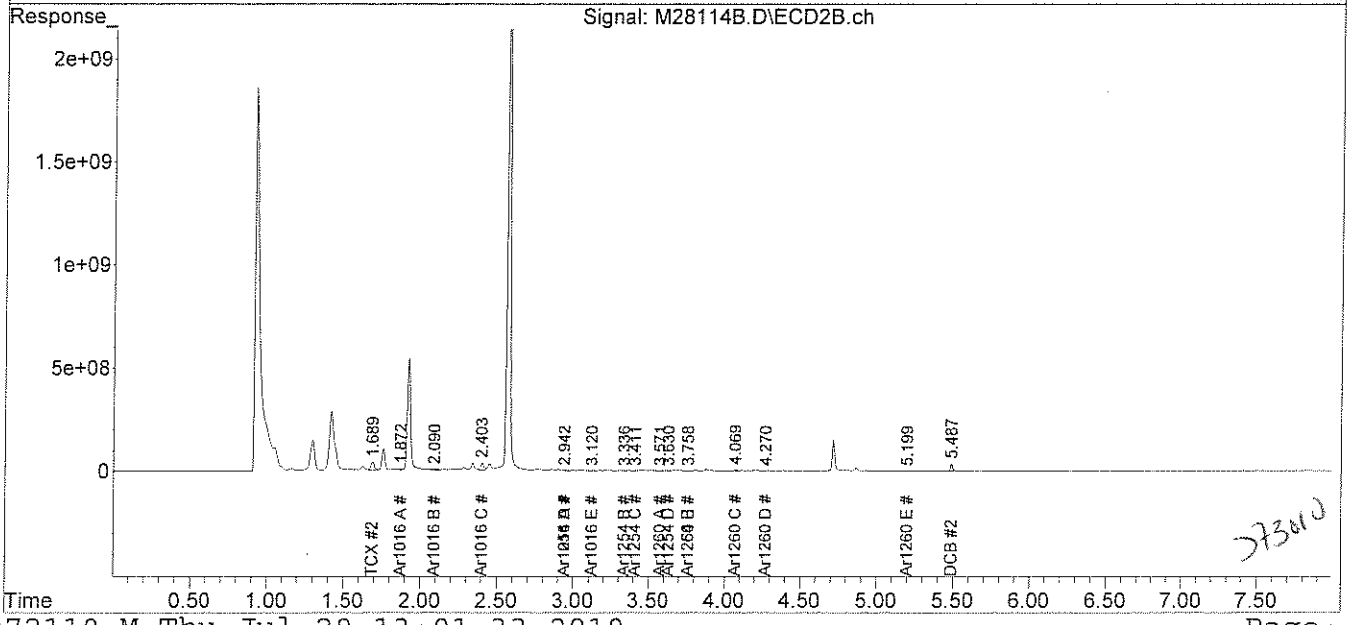
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072810-M\
Data File : M28114B.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 28 Jul 2010 8:29 pm
Operator : JK
Sample : B072610PSOX2,RR,,A/C
Misc : SOIL
ALS Vial : 34 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 13:01:26 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:28 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-001

SAMPLE DATA

Lab Sample ID: 67290-1
Matrix: Solid
Percent Solid: 98
Dilution Factor: 22
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/28/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	730	U
PCB-1221	730	U
PCB-1232	730	U
PCB-1242	730	U
PCB-1248	730	U
PCB-1254	730	**12800**
PCB-1260	730	U
PCB-1262	730	U
PCB-1268	730	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	82	%
Decachlorobiphenyl	81	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-1,1:2,,A/C
Data File: M28116.D
Dilution Factor: 22.4

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	12830	11060	14.8	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

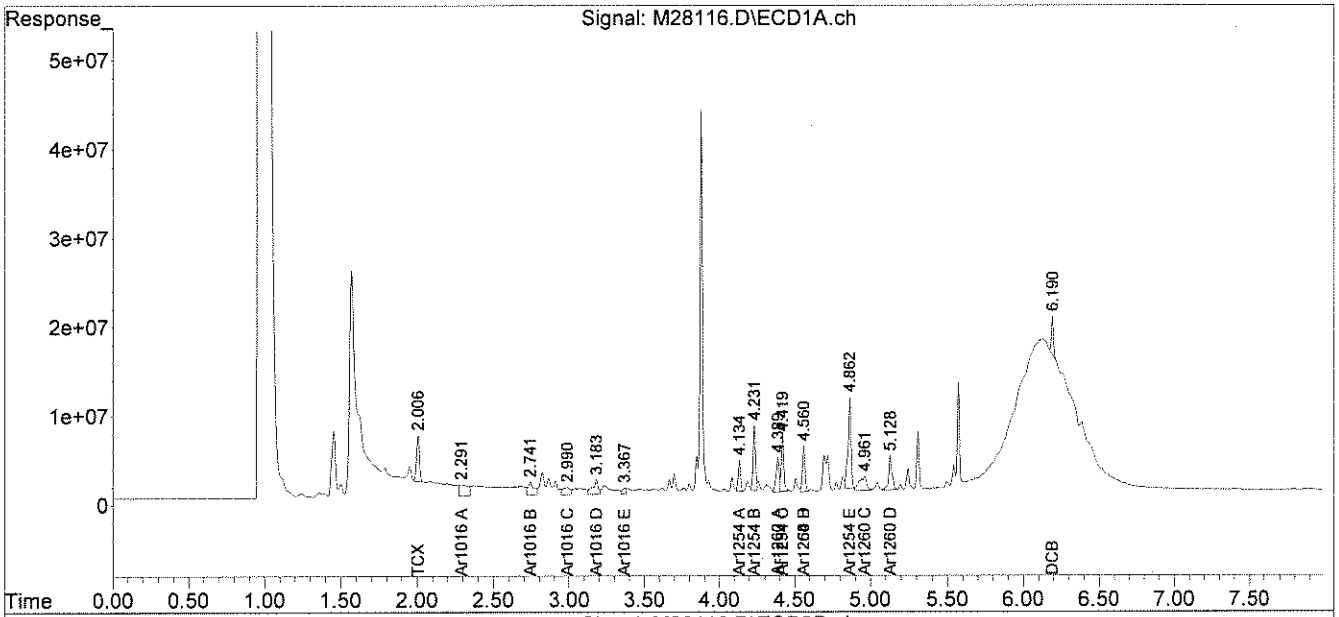
Quantitation Report (QT Reviewed)

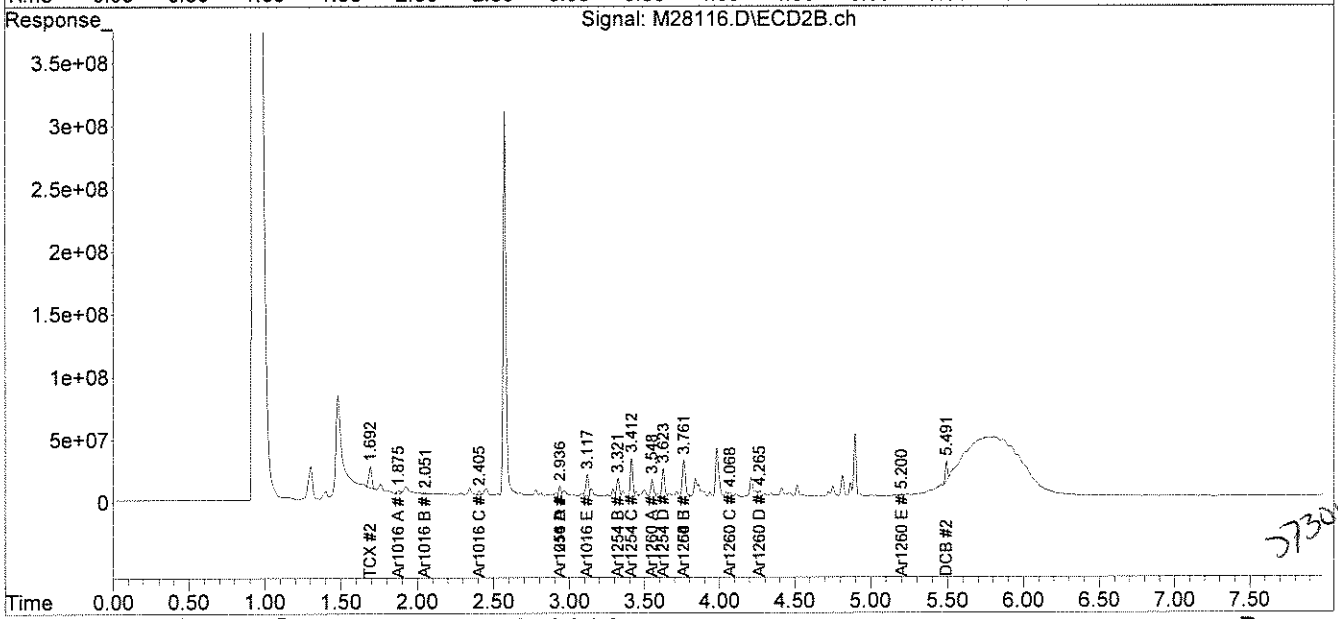
Data Path : C:\msdchem\1\DATA\072810-M\
Data File : M28116.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 28 Jul 2010 8:49 pm
Operator : JK
Sample : 67290-1,1:2,,A/C
Misc : SOIL
ALS Vial : 36 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 13:12:20 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:28 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um

07.29.10





7/30/10

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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-002

SAMPLE DATA

Lab Sample ID: 67290-2
Matrix: Solid
Percent Solid: 99
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	**4620**
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	92	%
Decachlorobiphenyl	40	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-2,,A/C
Data File: M28028.D
Dilution Factor: 10.9

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	4624	3706	22.0	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

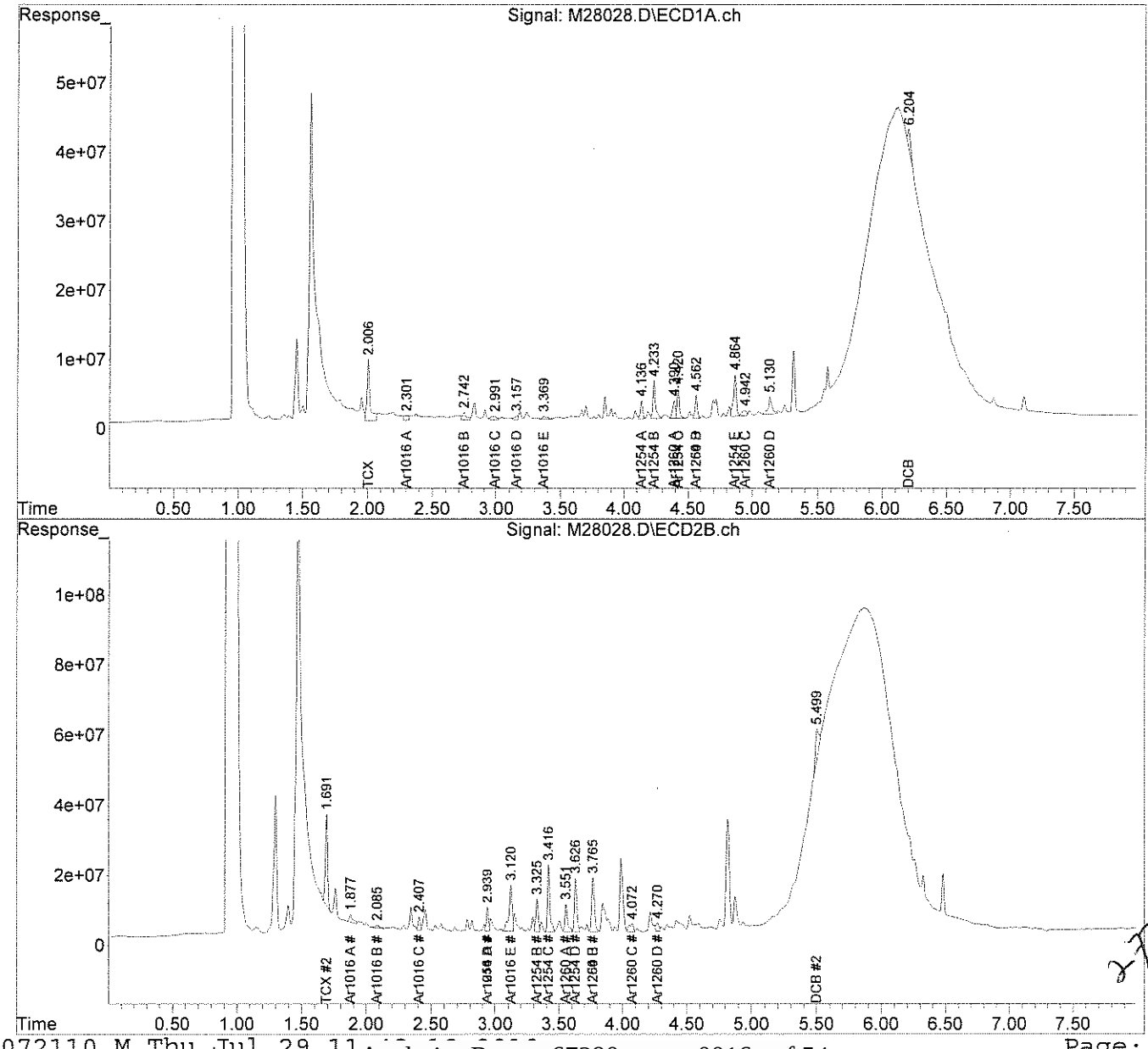
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28028.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 8:01 pm
Operator : JK
Sample : 67290-2,,A/C
Misc : SOIL
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:42:11 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

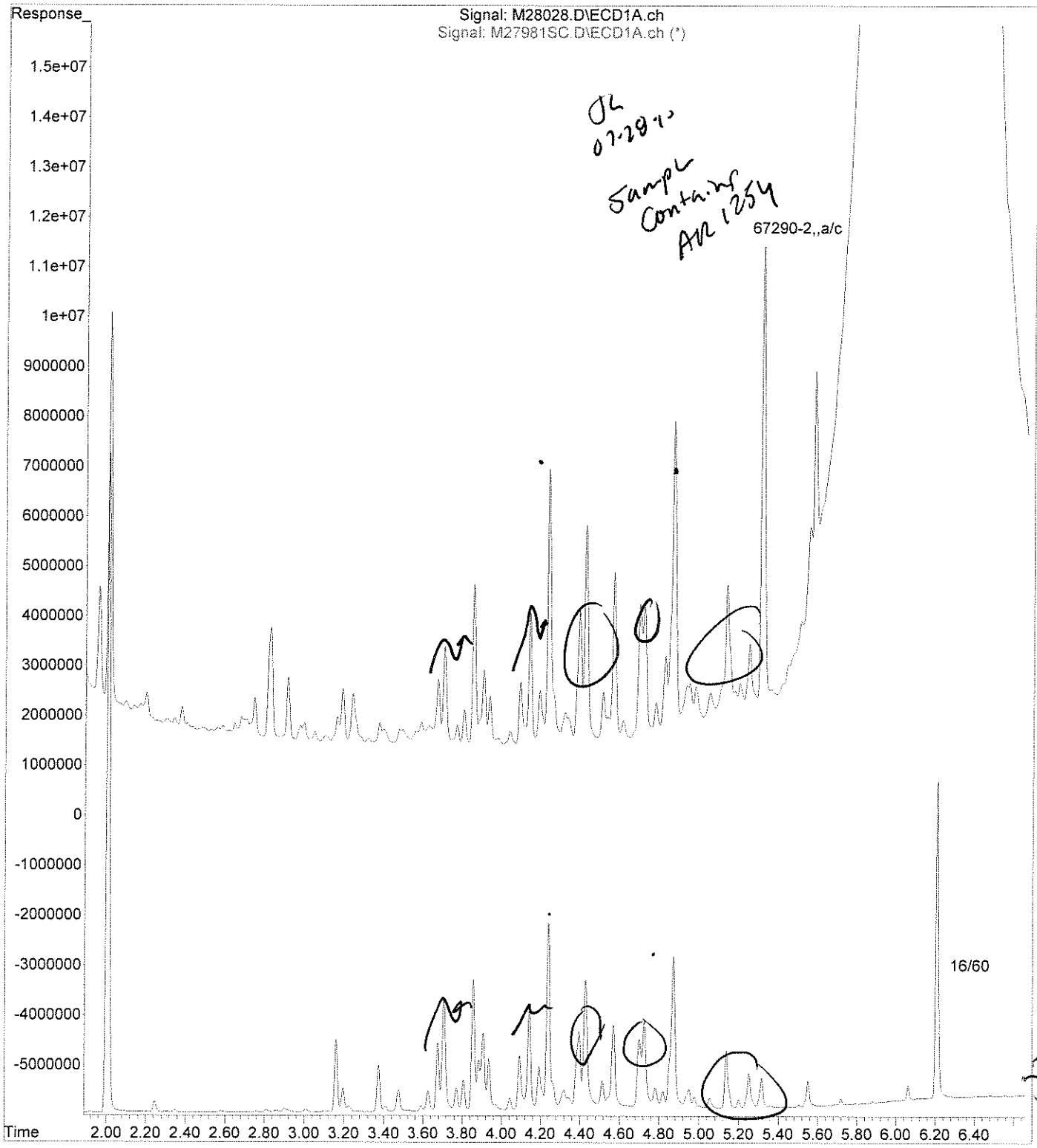
JR 07-29-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



2.79 ppm

File :C:\msdchem\1\DATA\072710-M\M28028.D
Operator : JK
Acquired : 27 Jul 2010 8:01 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67290-2,,A/C
Misc Info : SOIL
Vial Number: 27



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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-003

SAMPLE DATA

Lab Sample ID: 67290-3
Matrix: Solid
Percent Solid: 97
Dilution Factor: 10
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	**1630**
PCB-1260	330	U
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	82	%
Decachlorobiphenyl	45	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-3,,A/C
Data File: M28029.D
Dilution Factor: 10.0

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	1632	1131	36.2	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

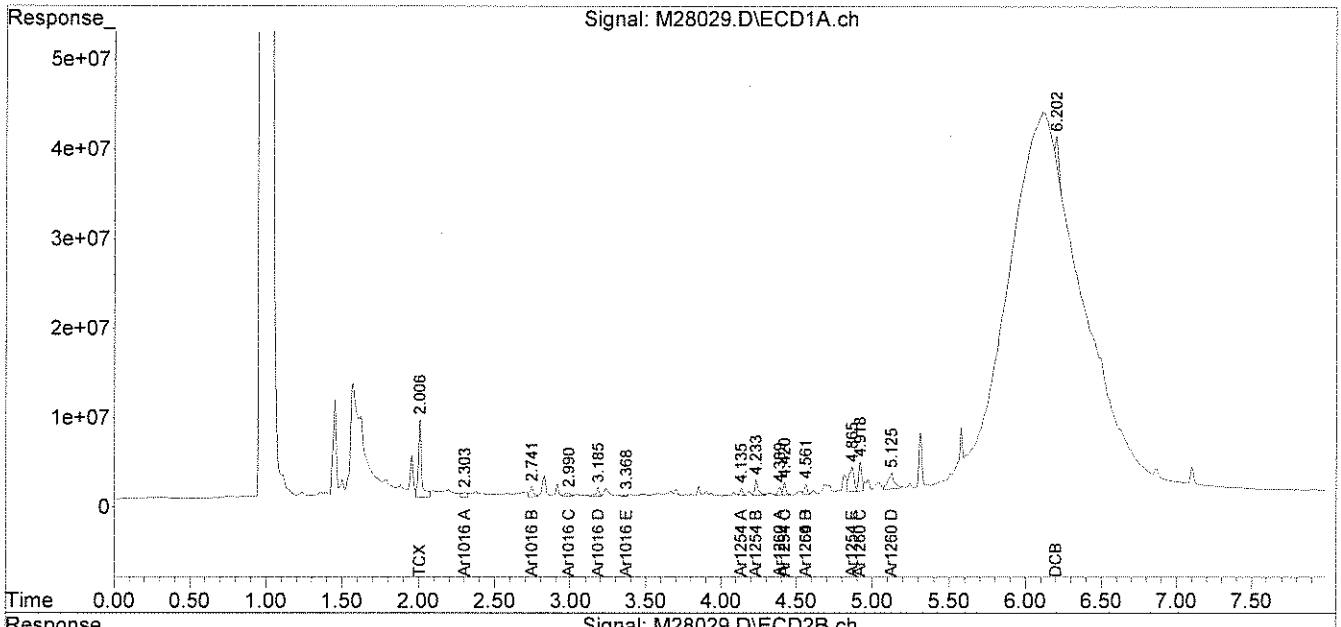
Comments: _____

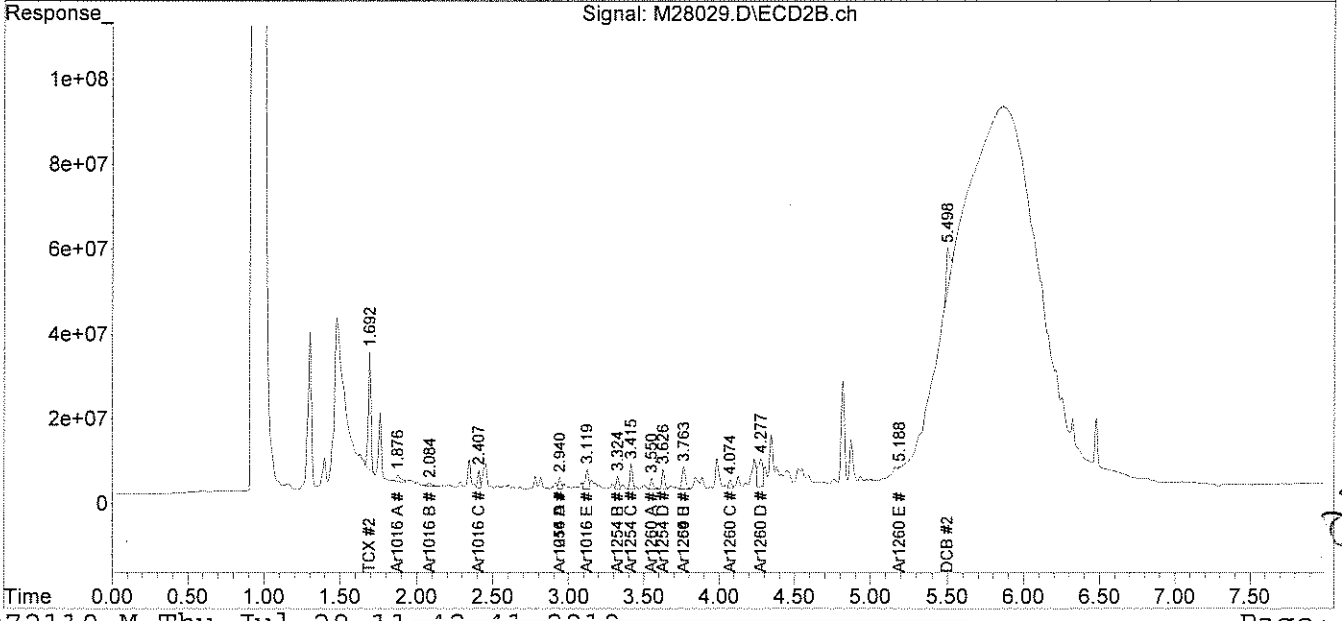
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28029.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 8:11 pm
Operator : JK
Sample : 67290-3,,A/C
Misc : SOIL
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:42:34 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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Andover MA 01810

July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-004

SAMPLE DATA

Lab Sample ID: 67290-4
Matrix: Solid
Percent Solid: 99
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	**2080**
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	48	%
Decachlorobiphenyl	22*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-4,,A/C
Data File: M28030.D
Dilution Factor: 11.2

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	2085	1711	19.7	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

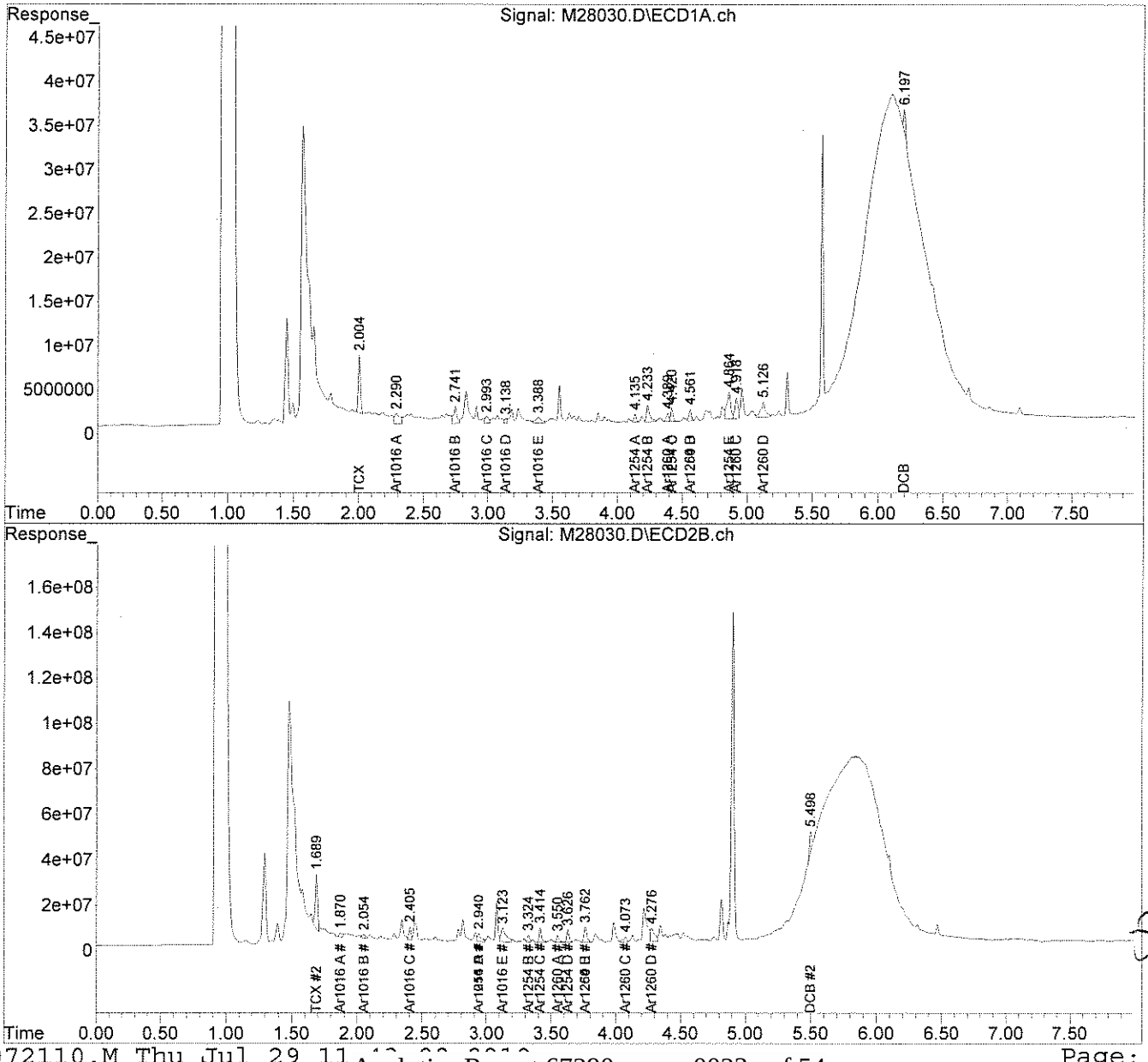
PCB FORM 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28030.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 8:21 pm
Operator : JK
Sample : 67290-4,,A/C
Misc : SOIL
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 10:36:58 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-005

SAMPLE DATA

Lab Sample ID: 67290-5
Matrix: Solid
Percent Solid: 99
Dilution Factor: 10
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	U
PCB-1260	330	U
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	114	%
Decachlorobiphenyl	5044*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

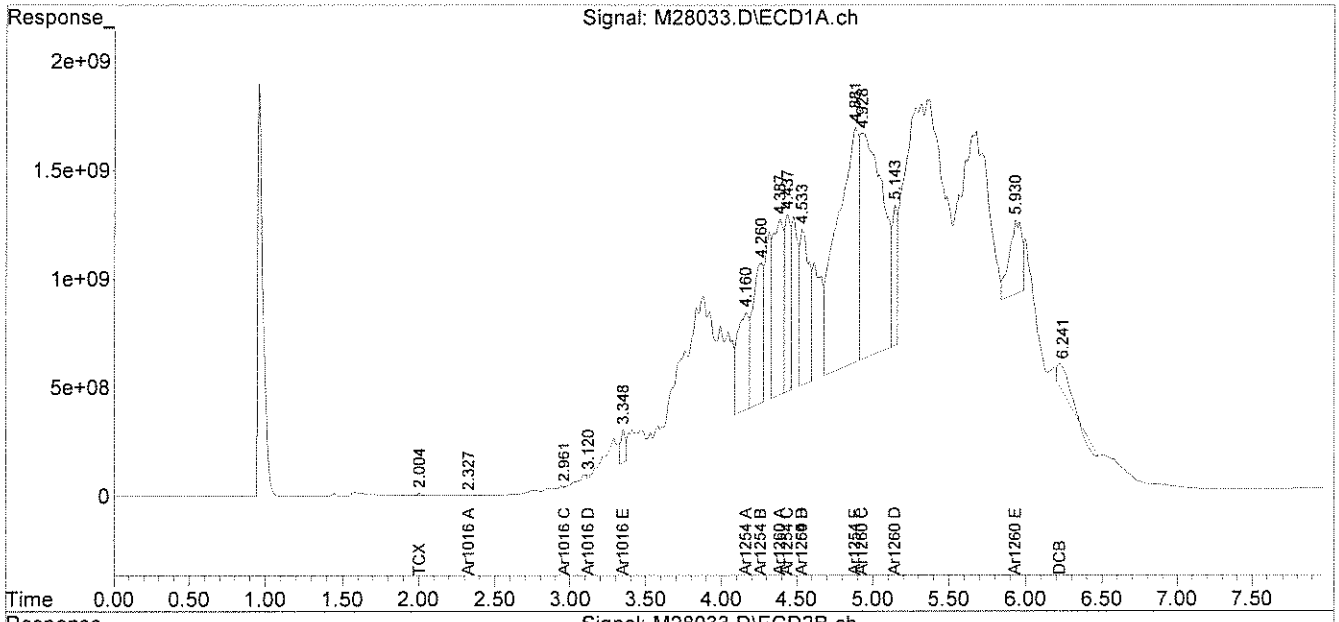
Quantitation Report (QT Reviewed)

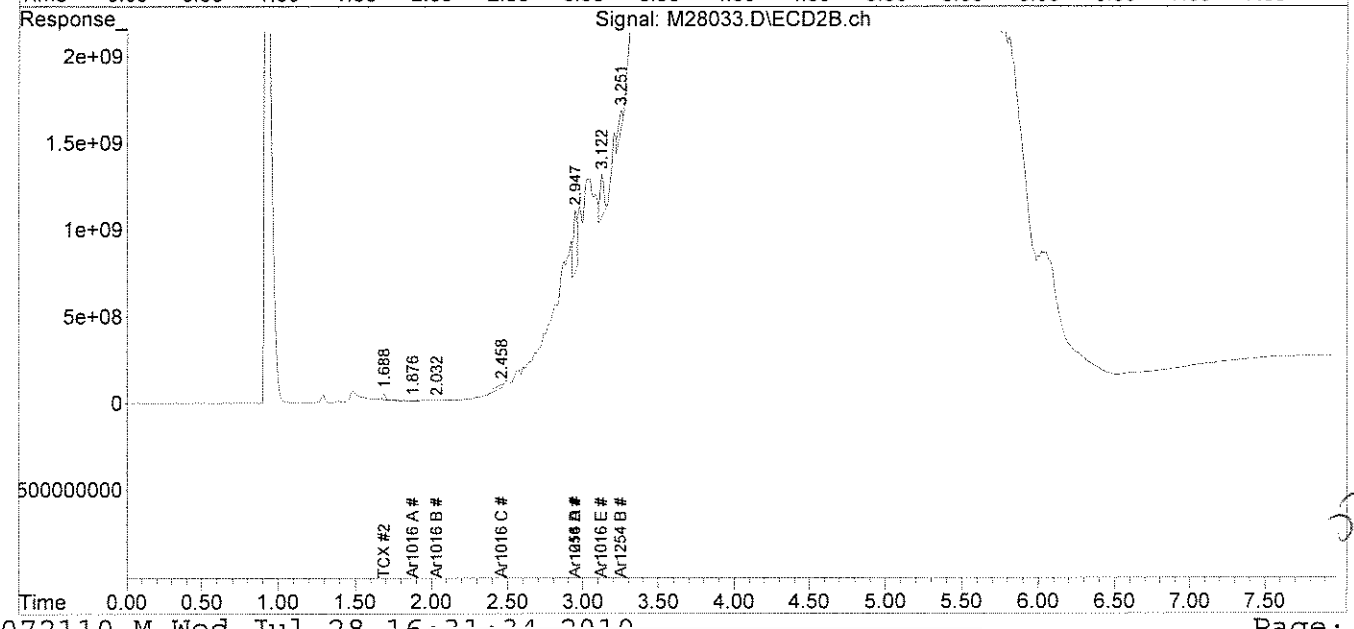
Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28033.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 8:52 pm
Operator : JK
Sample : 67290-5,,A/C
Misc : SOIL
ALS Vial : 32 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 28 15:50:34 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 07-28-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





7/30/10

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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-006

SAMPLE DATA

Lab Sample ID: 67290-6
Matrix: Solid
Percent Solid: 98
Dilution Factor: 10
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	U
PCB-1260	330	U
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	114	%
Decachlorobiphenyl	86	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

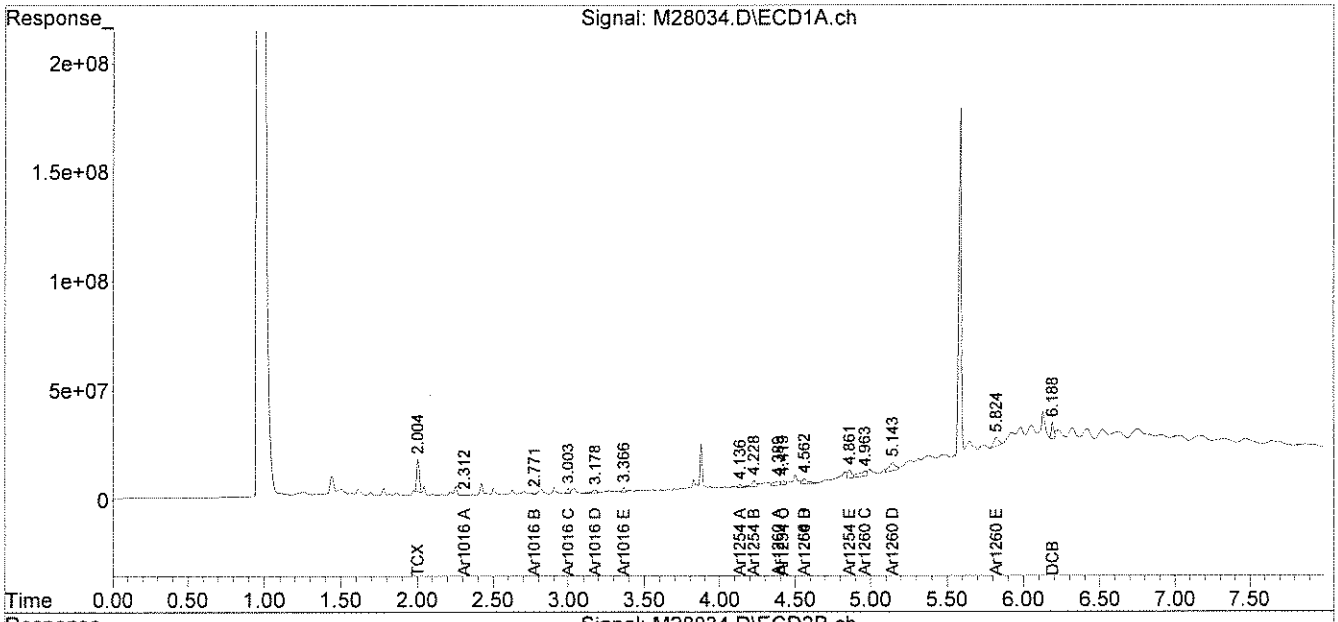
Authorized signature

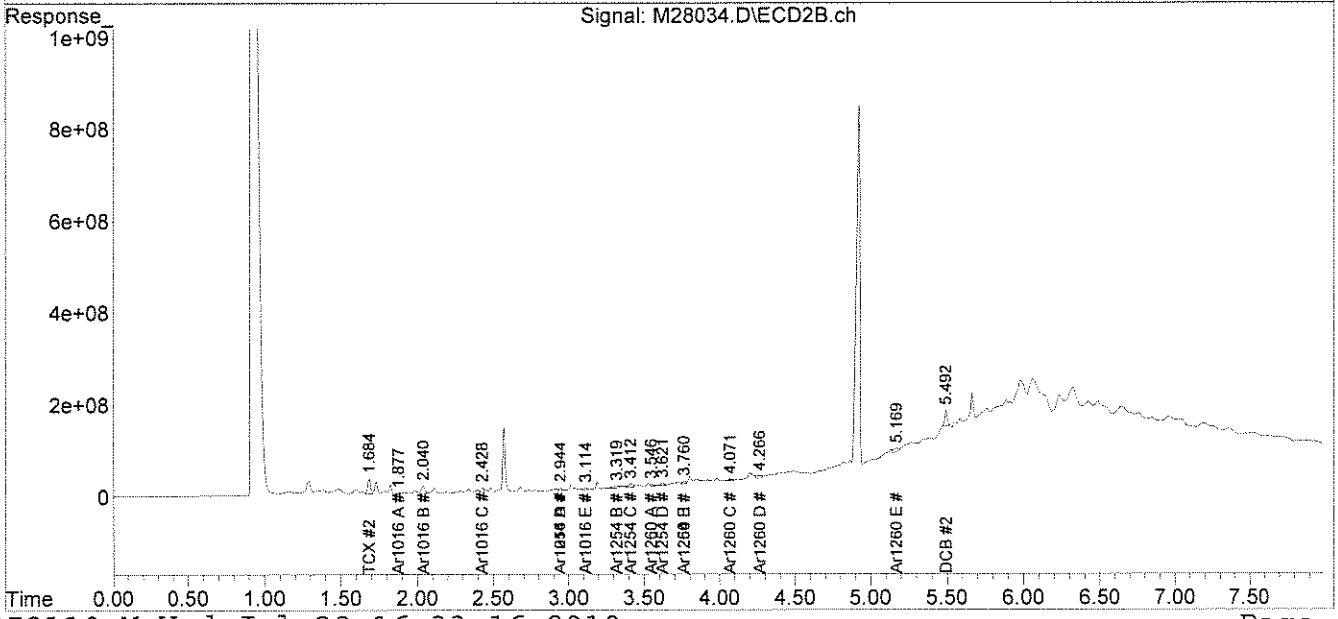
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28034.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 9:02 pm
Operator : JK
Sample : 67290-6,,A/C
Misc : SOIL
ALS Vial : 33 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 28 16:33:09 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-007

SAMPLE DATA

Lab Sample ID: 67290-7
Matrix: Solid
Percent Solid: 99
Dilution Factor: 1.0
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	69	%
Decachlorobiphenyl	83	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

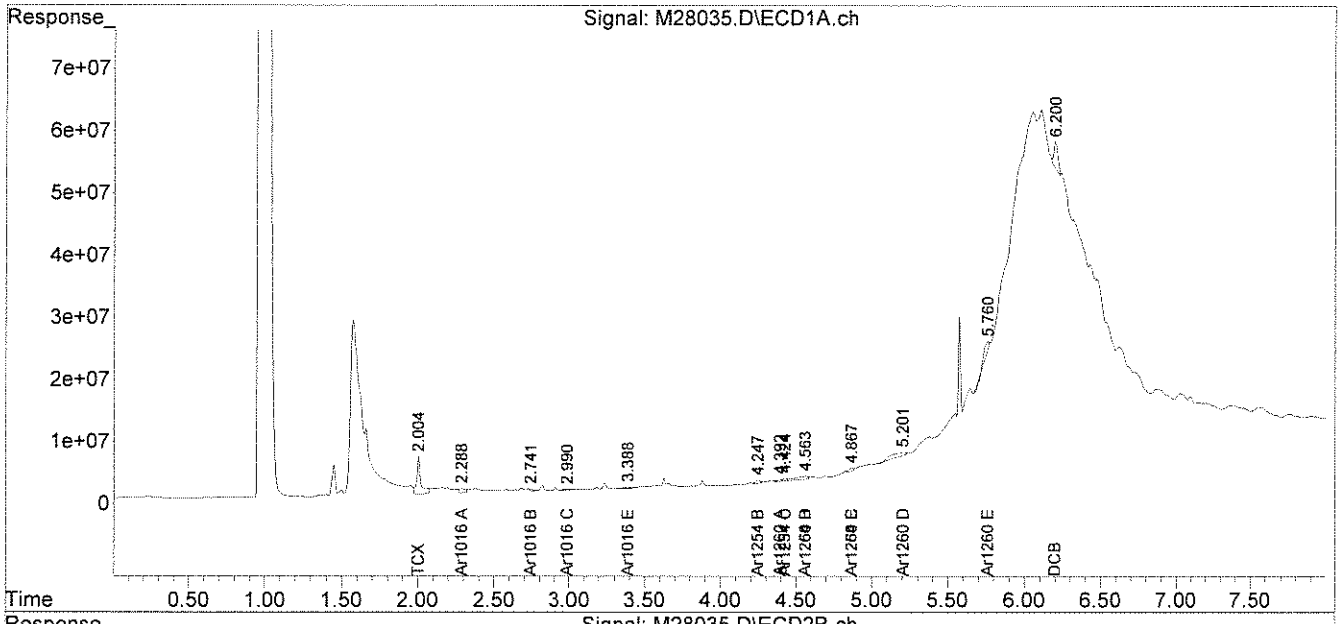
Quantitation Report (QT Reviewed)

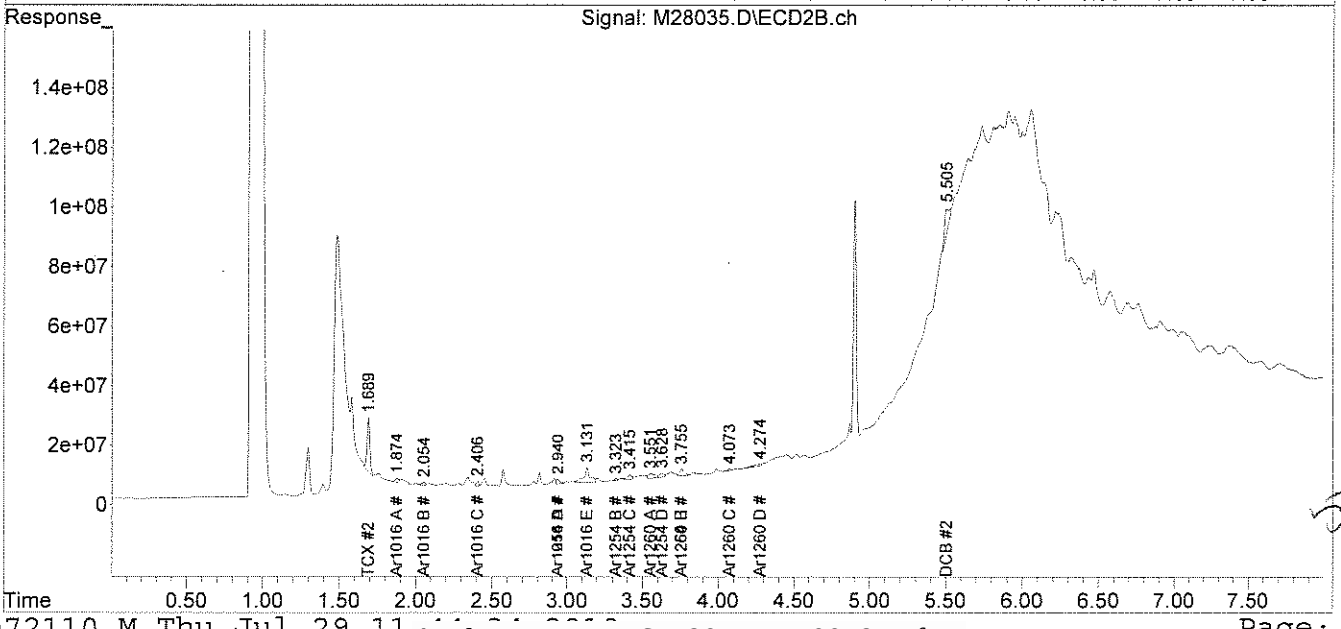
Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28035.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 9:13 pm
Operator : JK
Sample : 67290-7,,A/C
Misc : SOIL
ALS Vial : 34 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:44:23 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 07.29.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-008

SAMPLE DATA

Lab Sample ID: 67290-8
Matrix: Solid
Percent Solid: 99
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	U
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	55	%
Decachlorobiphenyl	31*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

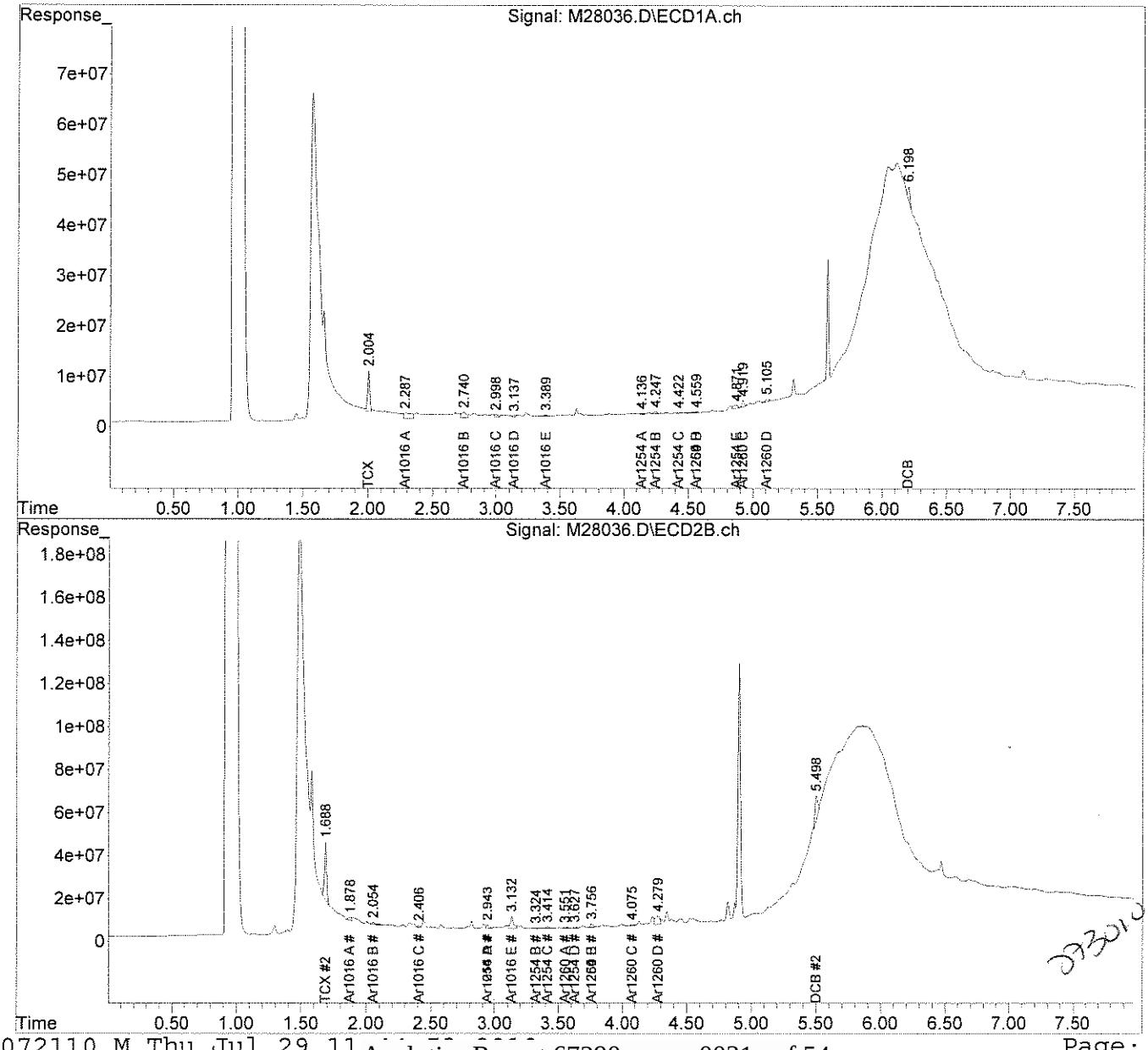
Authorized signature

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28036.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 9:23 pm
Operator : JK
Sample : 67290-8,,A/C
Misc : SOIL
ALS Vial : 35 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:44:46 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-009

SAMPLE DATA

Lab Sample ID: 67290-9
Matrix: Solid
Percent Solid: 99
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	U
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	91	%
Decachlorobiphenyl	62	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

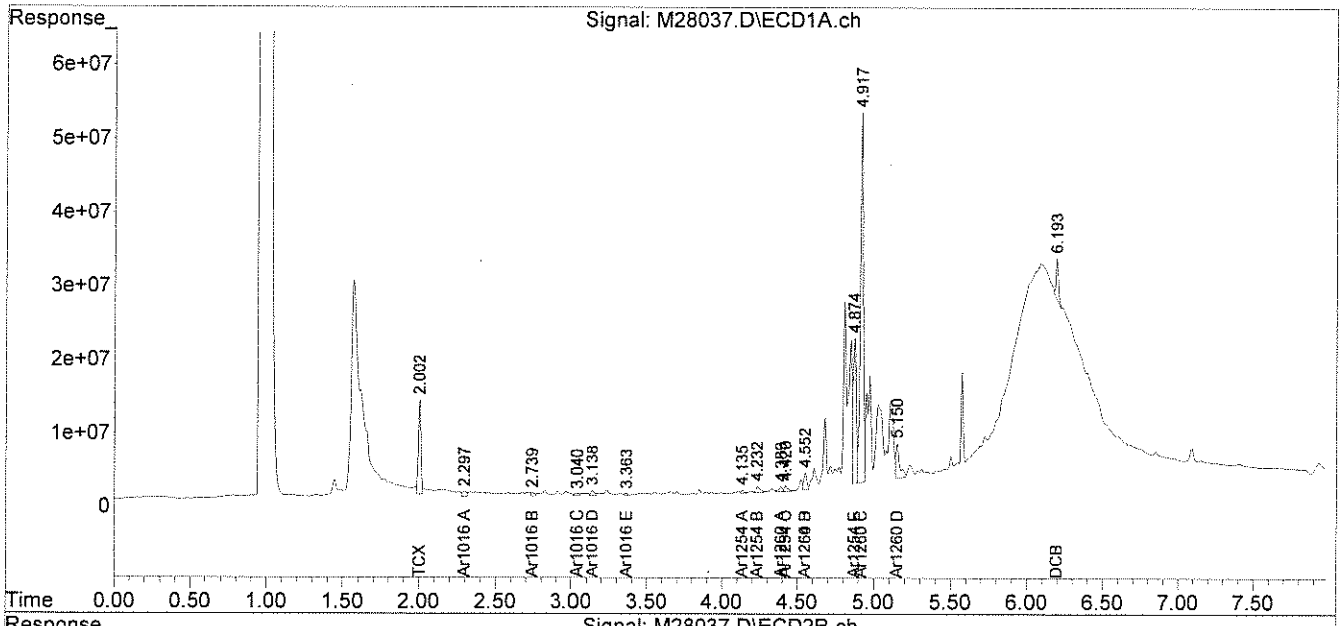
Quantitation Report (QT Reviewed)

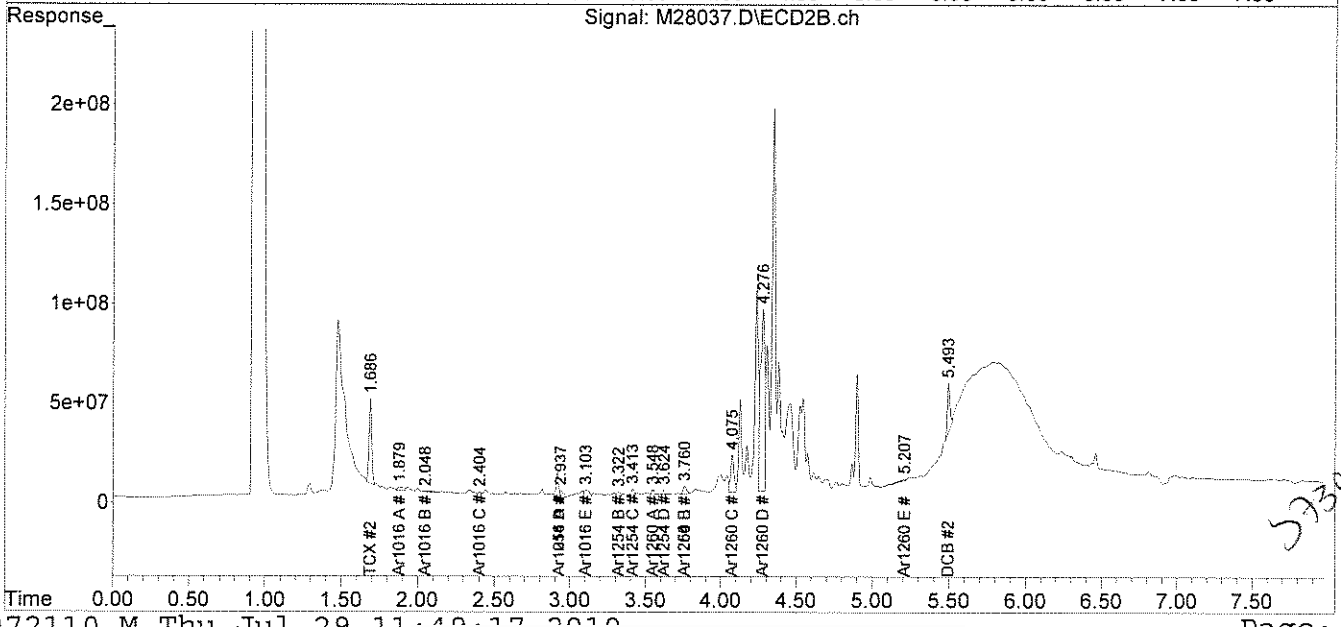
Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28037.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 9:33 pm
Operator : JK
Sample : 67290-9,,A/C
Misc : SOIL
ALS Vial : 36 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:45:07 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 07.29.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-010

SAMPLE DATA

Lab Sample ID: 67290-10
Matrix: Solid
Percent Solid: 97
Dilution Factor: 196
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/28/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	6470	U
PCB-1221	6470	U
PCB-1232	6470	U
PCB-1242	6470	U
PCB-1248	6470	U
PCB-1254	6470	**84300**
PCB-1260	6470	U
PCB-1262	6470	U
PCB-1268	6470	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	*	%
Decachlorobiphenyl	*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* The surrogates were diluted out.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-10,1:20,,A/C
Data File: M28117.D
Dilution Factor: 196.2

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	84302	78227	7.5	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

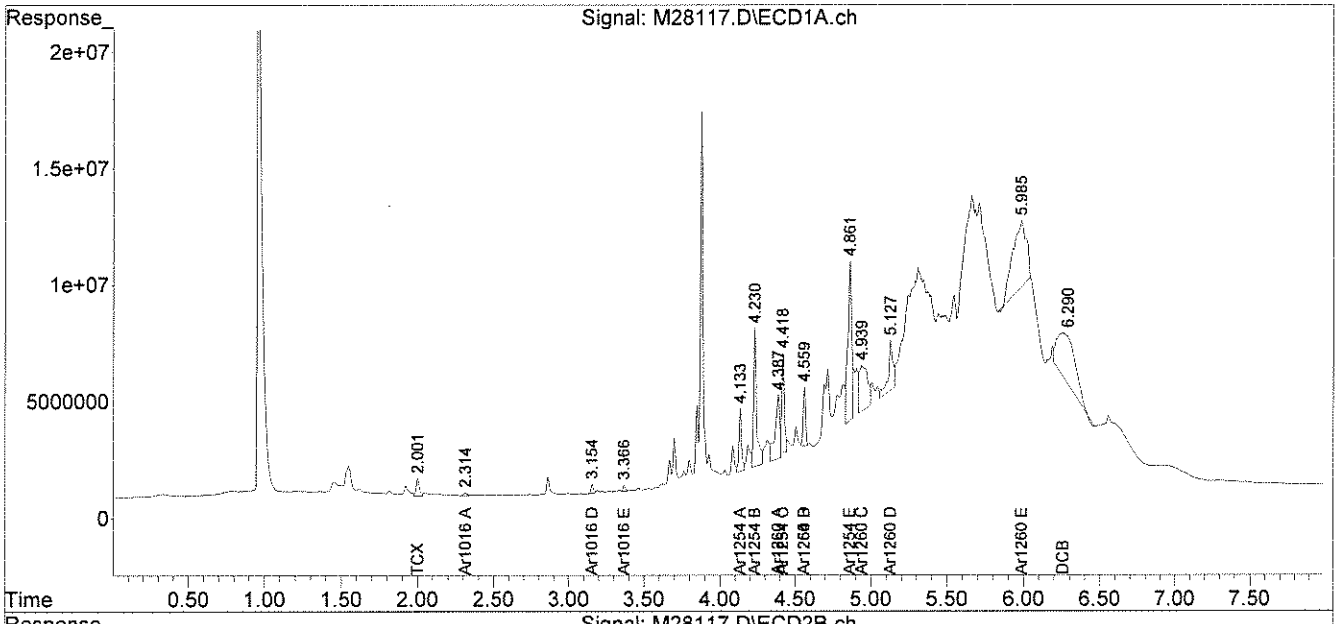
Comments: _____

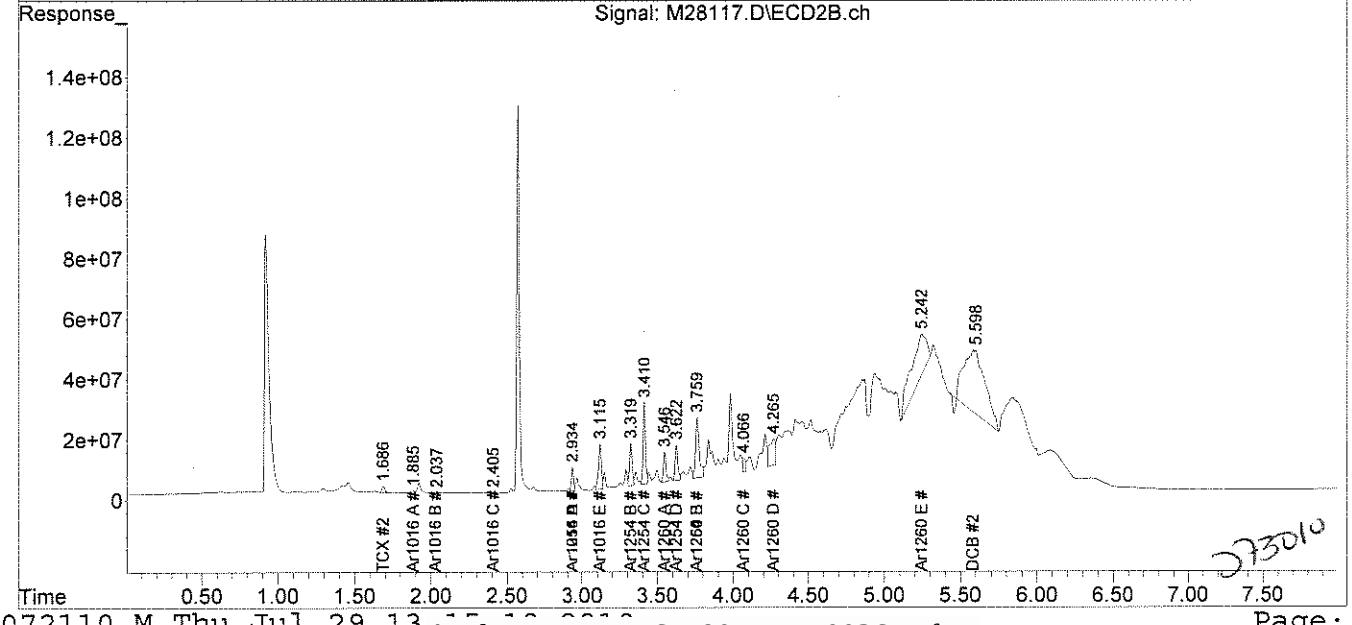
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072810-M\
Data File : M28117.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 28 Jul 2010 9:00 pm
Operator : JK
Sample : 67290-10,1:20,,A/C (~~Sig #1); 67290-10,1:2,0,A/C (Sig #2~~)
Misc : SOIL
ALS Vial : 37 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 13:15:10 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:28 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-011

SAMPLE DATA

Lab Sample ID: 67290-11
Matrix: Solid
Percent Solid: 98
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	**2660**
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	71	%
Decachlorobiphenyl	29*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-11,,A/C
Data File: M28039.D
Dilution Factor: 10.8

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	2405	2664	10.2	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

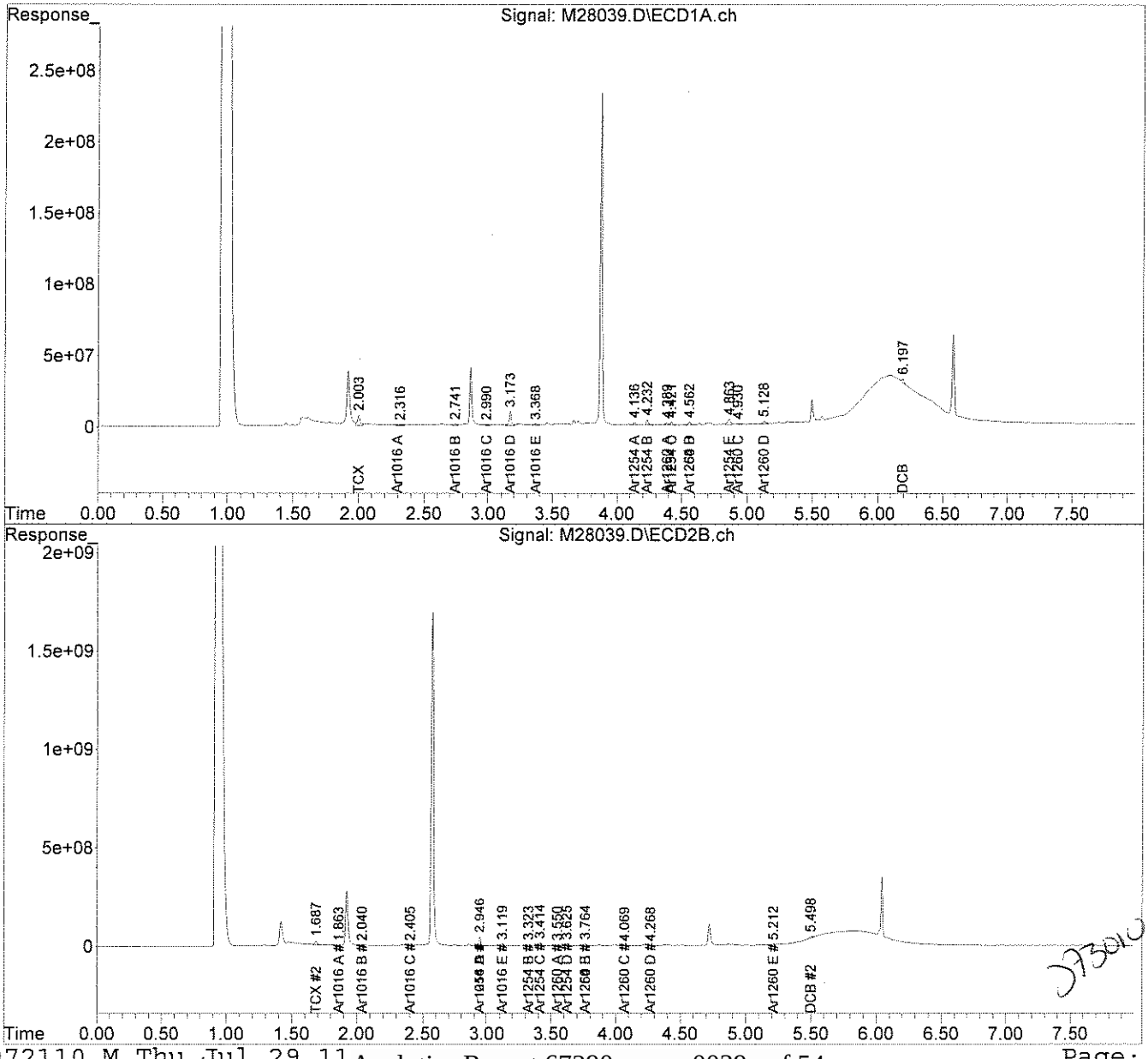
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28039.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 9:54 pm
Operator : JK
Sample : 67290-11,,A/C
Misc : SOIL
ALS Vial : 38 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:45:42 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JR 07.29.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



JR 07.30.10

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July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-012

SAMPLE DATA

Lab Sample ID: 67290-12
Matrix: Solid
Percent Solid: 99
Dilution Factor: 10
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	**633**
PCB-1260	330	U
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	63	%
Decachlorobiphenyl	22*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290
Sample: 67290-12,,A/C
Data File: M28040.D
Dilution Factor: 10.2

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	526	633	18.4	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

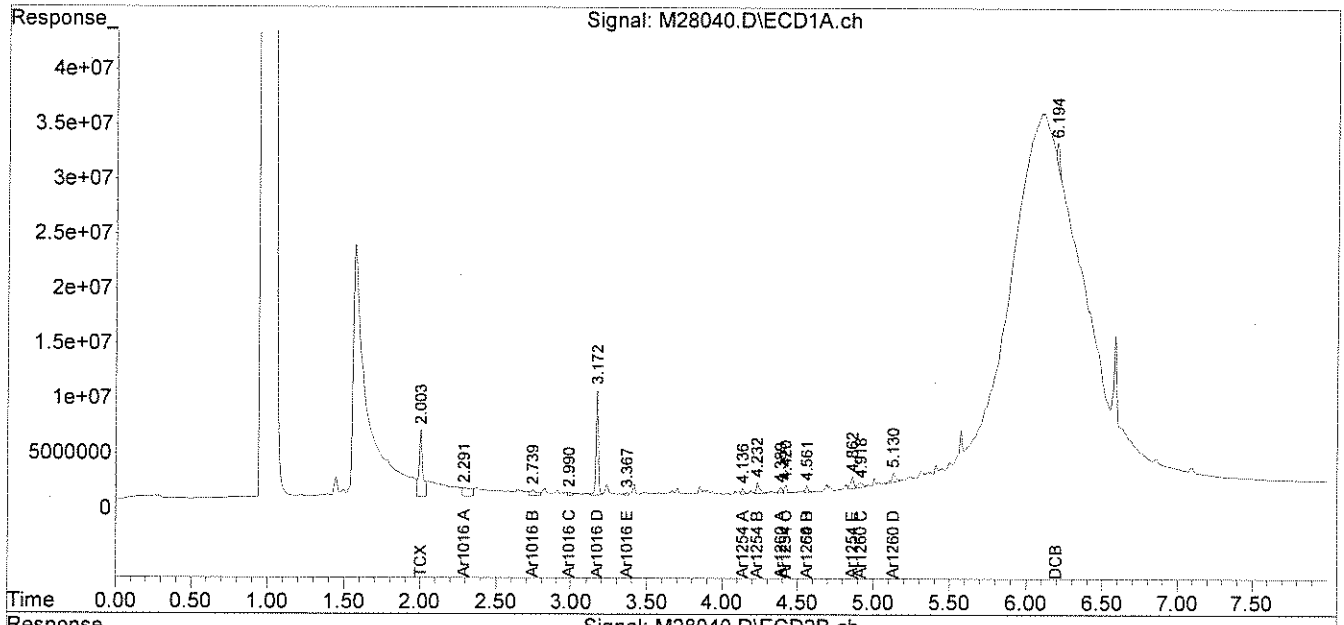
Quantitation Report (QT Reviewed)

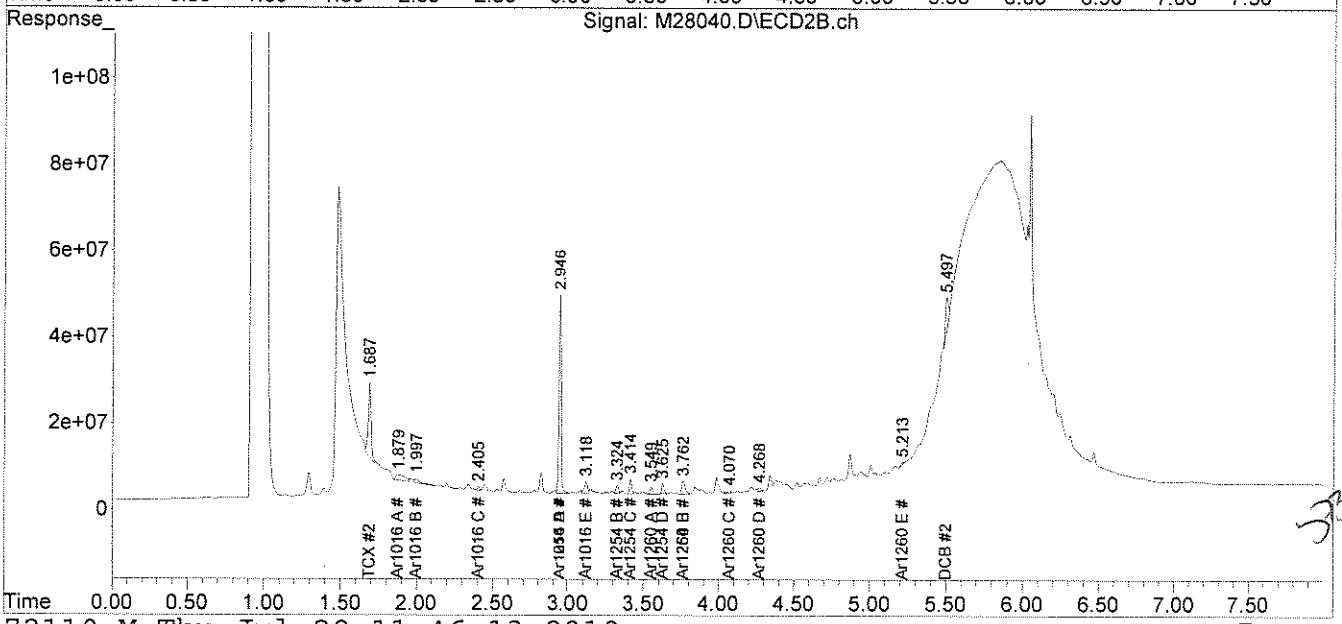
Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28040.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 10:04 pm
Operator : JK
Sample : 67290-12,,A/C
Misc : SOIL
ALS Vial : 39 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:46:04 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um

07.29.10





analytics environmental laboratory LLC

195 Commerce Way
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

July 30, 2010

CLIENT SAMPLE ID

Project Name: HMS-QUAD

Project Number: 223586

Field Sample ID: HMS-QD-013

SAMPLE DATA

Lab Sample ID: 67290-13
Matrix: Solid
Percent Solid: 100
Dilution Factor: 11
Collection Date: 07/20/10
Lab Receipt Date: 07/21/10
Extraction Date: 07/21/10
Analysis Date: 07/27/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	U
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	83	%
Decachlorobiphenyl	29*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
* Surrogate recovery outside control limits due to sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

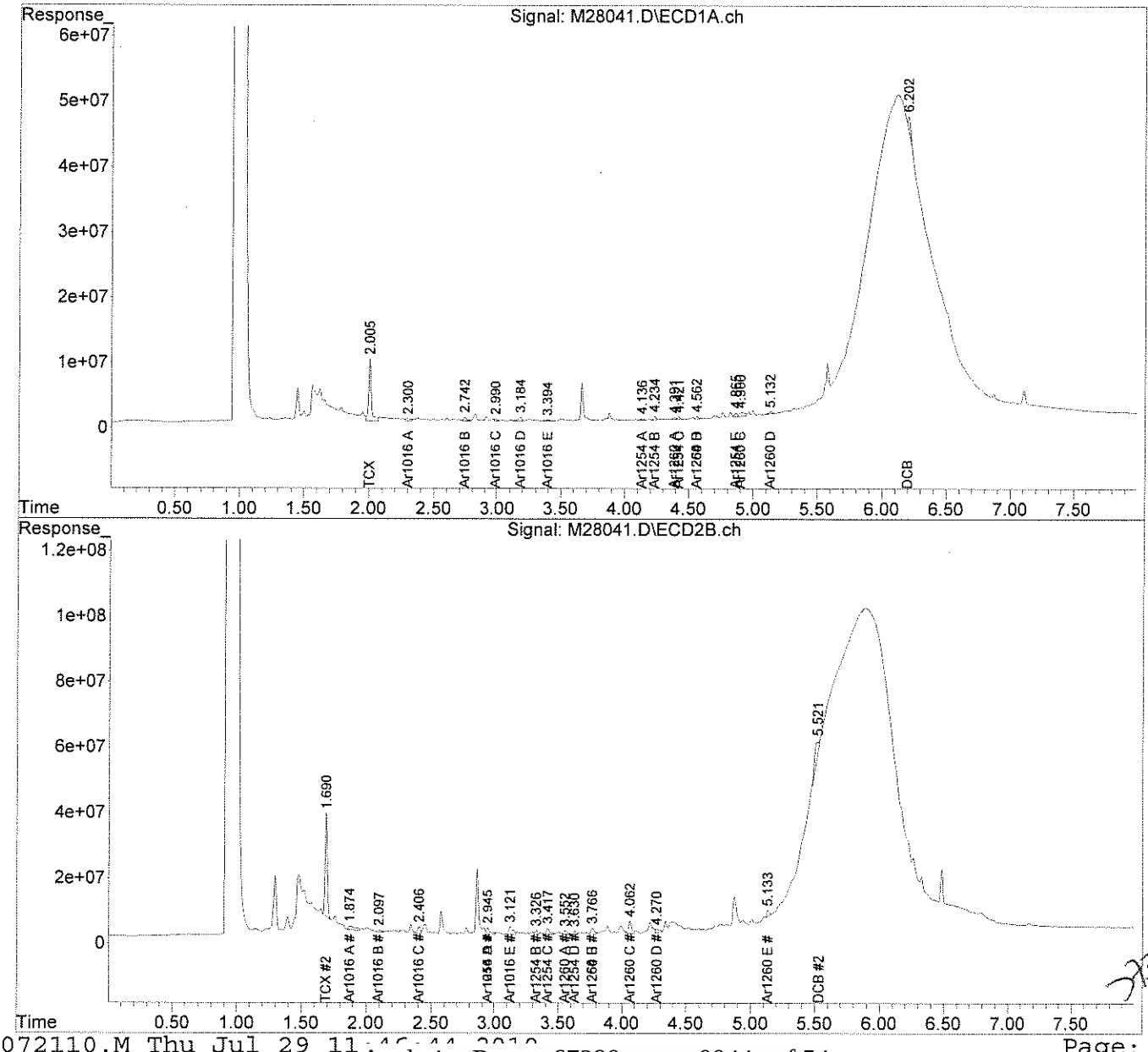
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\072710-M\
Data File : M28041.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 27 Jul 2010 10:15 pm
Operator : JK
Sample : 67290-13,,A/C
Misc : SOIL
ALS Vial : 40 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jul 29 11:46:36 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JR 07.29.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



JR 7.30.10

PCB
QC FORMS

PCB SOIL
SYSTEM MONITORING COMPOUNDS
SUMMARY

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290

	Column #1				Column #2			
SAMPLE ID	SMC 1 (%)	#	SMC 2 (%)	#	SMC 1 (%)	#	SMC 2 (%)	#
B072110PSOX,,A/C	93		78		87		78	
L072110PSOX,,A/C	95		78		85		77	
LD072110PSOX,,A/C	91		77		86		77	
67290-2,,A/C	92		40		51		28	*
67290-3,,A/C	82		45		54		31	*
67290-4,,A/C	48		22	*	50		22	*
67290-4,MS,,A/C	68		43		48		28	*
67290-4,MSD,,A/C	58		38	*	50		30	*
67290-5,,A/C	114		5044	*	88		0	*
67290-6,,A/C	114		86		72		83	
67290-7,,A/C	69		83		38	*	33	*
67290-8,,A/C	55		31	*	51		33	*
67290-9,,A/C	91		62		86		57	
67290-11,,A/C	71		29	*	41		23	*
67290-12,,A/C	63		22	*	37	*	20	*
67290-13,,A/C	83		29	*	61		23	*

		Lower Limit	Upper Limit
SMC #1 =	TCX	40	130
SMC #2 =	DCB	40	130

\# Column to be used to flag recovery values outside of QC limits
* Values outside QC limits
D System Monitoring Compound diluted out

PCB SOIL
SYSTEM MONITORING COMPOUNDS
SUMMARY

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67290

	Column #1				Column #2			
SAMPLE ID	SMC 1 (%)	#	SMC 2 (%)	#	SMC 1 (%)	#	SMC 2 (%)	#
B072610PSOX2,RR,,A/	82		70		89		77	
67290-1,1:2,,A/C	82		81		78		65	
67290-10,1:20,,A/C	D		D		D		D	

		Lower Limit	Upper Limit
SMC #1 =	TCX	40	130
SMC #2 =	DCB	40	130

\# Column to be used to flag recovery values outside of QC limits
* Values outside QC limits
D System Monitoring Compound diluted out

PCB SOIL
LABORATORY CONTROL SAMPLE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG: 67290

Non-spiked sample: B072110PSOX,,A/C

Spike: L072110PSOX,,A/C

Spike duplicate: LD072110PSOX,,A/C

COMPOUND	LCS SPIKE ADDED (ug/kg)	LCSD SPIKE ADDED (ug/kg)	LOWER LIMIT	UPPER LIMIT	RPD LIMIT	NON-SPIKE RESULT (ug/kg)	SPIKE RESULT (ug/kg)	SPIKE % REC	#	SPIKE DUP RESULT (ug/kg)	SPIKE DUP % REC	#	RPD	#
PCB 1016	200	200	65	140	30	0	208	104		193	97		7.5	
PCB 1260	200	200	60	130	30	0	252	126		216	108		15.2	
PCB 1016 #2	200	200	65	140	30	0	247	123		247	124		0.3	
PCB 1260 #2	200	200	60	130	30	0	220	110		201	100		9.0	

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

Comments: _____

_____

PCB SOIL
MATRIX SPIKE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG: 67290

Non-spiked sample: 67290-4,,A/C

Spike: 67290-4,MS,,A/C

Spike duplicate: 67290-4,MSD,,A/C

COMPOUND	LCS SPIKE ADDED (ug/kg)	LCSD SPIKE ADDED (ug/kg)	LOWER LIMIT	UPPER LIMIT	RPD LIMIT	NON-SPIKE RESULT (ug/kg)	SPIKE RESULT (ug/kg)	SPIKE % REC	#	SPIKE DUP RESULT (ug/kg)	SPIKE DUP % REC	#	RPD	#
PCB 1016	2038	1868	65	140	30	0	1843	90		1981	106		15.9	
PCB 1260	2038	1868	60	130	30	0	1658	81		2016	108		28.1	
PCB 1016 #2	2038	1868	65	140	30	0	2244	110		2210	118		7.2	
PCB 1260 #2	2038	1868	60	130	30	0	1348	66		1674	90		30.1	*

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

Comments: _____

_____

CHAIN OF CUSTODIES

Chain Of Custody Form

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, NH 03801
Phone (603) 436-5111
Fax (603) 430-2151

Project#: 223586 Proj. Name: HMS - QUAD
Company: Woodard &Curran
Contact: GEORGE FRANKLIN
Address: 35 New England Business Center Suite 180
Andover, MA 01810
Phone: (978)557-8150 PO# Quote #
Sampler (Signature):

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract

For Analytics Use Only Rev. 5 06/18/08

Samples were:
1) Shipped or (hand-delivered)
2) Temp blank °C 2
3) Received in good condition (Y) or N
4) pH checked by: N/A
5) Labels checked by: JBB 7/21/10

Container Key
P=plastic G=glass

Station Identification	Sample Date	Sample Time	Analysis	Unpres	4° C	HNO_3	H_2SO_4	HCL	Methanol	Other	Matrix	Container number	Container type	pH	Analytics Sample #
HMS-QD-001	7/20/10	0950	PCBs		✓						CK	1	G		67290-1
HMS-QD-002	7/20/10	0955	PCB		✓						CK	1	G		-2
HMS-QD-003	7/20/10	0955	PCB		✓						CK	1	G		-3
HMS-QD-004	7/20/10	1010	PCB		✓						CK	1	G		-4
HMS-QD-005	7/20/10	1017	PCB		✓						CK	1	G		-5
HMS-QD-006	7/20/10	1023	PCB		✓						CK	1	G		-6
HMS-QD-007	7/20/10	1031	PCB		✓						CK	1	G		-7
HMS-QD-008	7/20/10	1030	PCB		✓						CK	1	G		-8
HMS-QD-009	7/20/10	1042	PCB		✓						CK	1	G		-9
HMS-QD-010	7/20/10	1048	PCB		✓						CK	1	G		-10
HMS-QD-011	7/20/10	1053	PCB		✓						CK	1	G		-11

Email Results to:
gfranklin
jhamel

Comments / Instructions:
PCBs via USEPA 8082 w/ Soxhlet Extraction CK = Caulk
R.L. ≤ 1.0 mg/kg
All Samples Potentially PCB Containing Caulk (Source Material)
STD 5-7 DAY TAT

Turnaround Time (TAT)
☐ 24hr* ☐ 48hr*
☐ 72hr* ☑ 5 Days*
☐ 10 Days
*Fee may apply; lab approval required

Project Requirements:
*Fee may apply

Report Type:
☐ MCP* ☑ Level II*
☐ CTRCP* ☐ Level III*
☐ DOD* ☐ Level IV*
☐ Standard

State:
☐ NH
☐ MA
☐ ME
☐ CT
☐ RI
Other: TSCA

State Standard: ______
(eg. S-1 or GW-1)
EDD Required: Y* (N)
Type: ______

Relinquished By Sampler:	Received By:	Date: 7/21/10	Time: 9:30
Relinquished By:	Received By:	Date:	Time:
Relinquished By:	Received By:	Date:	Time:

Received date: 7/21/10

Analytics\AEL Documents\AEL COC

Page 1 of 2

Chain Of Custody Form

Analytics environmental laboratory LLC
195 Commerce Way Suite E
Portsmouth, NH 03801
Phone (603) 436-5111
Fax (603) 430-2151

For Analytics Use Only Rev. 5 06/18/08

Samples were:
1) Shipped or (hand-delivered)
2) Temp blank °C 2
3) Received in good condition (Y) or N
4) pH checked by: N/A
5) Labels checked by: JBB 7/21/10

Project#: 223586 Proj. Name: HMS - QUAD
Company: Woodard &Curran
Contact: GEOFF FRANKLIN
Address: 35 New England Business Center Suite 180
Andover, MA 01810
Phone: (978)557-8150 PO# Quote #
Sampler (Signature):

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract

Container Key
P=plastic G=glass

Preservation

Station Identification	Sample Date	Sample Time	Analysis	Unpres	4° C	HNO_3	H_2SO_4	HCL	Methanol	Other	Matrix	Container number/type	pH	Analytics Sample #
~~HMS-QD-011~~	~~7/20/10~~		~~PCB~~		✓						~~CK~~	~~1 G~~		~~67290-12~~
HMS-QD-012	7/20/10	1058	PCB		✓						CK	1 G		67290-12
HMS-QD-013	7/20/10	1109	PCB		✓						CK	1 G		67290-13
~~HMS-QD-014~~	~~7/20/10~~		~~PCB~~		✓						~~CK~~	~~1 G~~		~~67290-14~~
~~HMS-QD-015~~	~~7/20/10~~		~~PCB~~		✓						~~CK~~	~~1 G~~		~~67290-15~~

JBB 7/21/10

JBB 7/21/10

Comments / Instructions:
PCBs via USEPA 8082 w/ Soxhlet Extraction
RL ≤ 1.0 mg/kg
CK = CAULK
All samples potentially PCB containing caulk (source material)

Email Results to:
Franklin
Shumal

Turnaround Time (TAT)
☐ 24hr* ☐ 48hr* ☐ 72hr* ☑ 5 Days* ☐ 10 Days
*Fee may apply; lab approval required

Project Requirements:
*Fee may apply

Report Type:
☐ MCP* ☑ Level II* ☐ CTRCP* ☐ Level III* ☐ DOD* ☐ Level IV* ☐ Standard

State:
☐ NH ☐ MA ☐ ME ☐ CT ☐ RI
Other: TSCA

State Standard: _____ (eg. S-1 or GW-1)

EDD Required: Y* (N)

Type: _____

Received By:	Received By:	Received By:
07/21/10		07/21/10
Time:	Time:	Time:
Date:	Date:	Date:
Relinquished By Sampler:	Relinquished By:	Relinquished By:

Analytics\AEL Documents\AEL COC

Chain Of Custody Form

Analytics environmental laboratory LLC
195 Commerce Way Suite E
Portsmouth, NH 03801
Phone (603) 436-5111
Fax (603) 430-2151

For Analytics Use Only Rev. 5 06/18/08

Samples were:
1) Shipped or hand-delivered
2) Temp blank °C 2
3) Received in good condition (Y) or N
4) pH checked by: HIA
5) Labels checked by:

Project#: 223586 Proj. Name: HMS - QUAD
Company: Woodard & Curran
Contact: GEORGE FRANKLIN
Address: 95 New England Business Center Suite 160
Andover, MA 01810
Phone: (978)557-8150 PO# Quote #
Sampler (Signature):

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract

Container Key
P=plastic G=glass

Station Identification	Sample Date	Sample Time	Analysis	Preservation: Unpres.	4°C	HNO3	H2SO4	HCL	Methanol	Other	Matrix	Container number/type	pH	Analytics Sample #
HMS-QD-011	7/20/10		PCB 6or		✓						CK	1 G		67290-12
HMS-QD-012	7/20/10	1058	PCB		✓						CK	1 G		67290-13
HMS-QD-013	7/21/10	1104	PCB		✓						CK	1 G		-13.13
HMS-QD-014	7/20/10		PCB		✓						CK	1 G		SAME
HMS-QD-015	7/21/10		PCB		✓						CK	1 G		SAME

Received By: 07/21/10 Time: Date:
Received By: Time: 9:30 Date: 7/21/10
Received By: Time: Date: 07/21/10
Relinquished By: Date: 7/21/10
Relinquished By: Date:
Relinquished By: Date:

Email Results to: JFranklin @woodard.com

Comments / Instructions:
PCBs via USEPA 8082 w/ Soxhlet Extraction
R.L. ≤1.0 mg/kg
CK = CAULK
All Samples Potentially PCB Containing Caulk Source Material

Project Requirements:
*Fee may apply

Report Type:
- MCP* Level III*
- CTRCP* Level IV*
- DOD* Standard

State:
- NH
- MA
- ME
- CT
- RI
- Other: TSCA

State Standard: (eg. S-1 or GW-1)

EDD Required: Y* (N)
Type:

Turnaround Time (TAT)
- 24hr* 48hr*
- 72hr* 5 Days*
- 10 Days

*Fee may apply; lab approval required

Analytics\QEL Documents\QEL COC

ANALYTICS SAMPLE RECEIPT CHECKLIST

analytics environmental laboratory LLC

AEL LAB#: 67290
CLIENT: Woodard & Curran
PROJECT: HMS-QUAD

COOLER NUMBER: NA
NUMBER OF COOLERS: 1
DATE RECEIVED: 7/21/10

A: PRELIMINARY EXAMINATION:

DATE COOLER OPENED: 7/21/10

1. Cooler received by(initials): IA — Date Received: 7/21/10

2. Circle one: Hand delivered / Shipped

3. Did cooler come with a shipping slip? (If so, skip 3) — Y / N/A

3a. Enter carrier name and airbill number here: _____

4. Were custody seals on the outside of cooler? — Y / N/A
How many & where: _____ Seal Date: _____ Seal Name: _____

5. Did the custody seals arrive unbroken and intact upon arrival? — Y / N/A

6. COC#: N/A

7. Were Custody papers filled out properly (ink,signed, etc)?	Y	N
8. Were custody papers sealed in a plastic bag?	(Y)	N
9. Did you sign the COC in the appropriate place?	(Y)	N
10. Was the project identifiable from the COC papers?	(Y)	N
11. Was enough ice used to chill the cooler?	(Y) N	Temp. of cooler: 2°C

B. Log-In: Date samples were logged in: 7/21/10 By: IA

12. Type of packing in cooler (bubble wrap, popcorn)	(Y)	N
13. Were all bottles sealed in separate plastic bags?	Y	(N)
14. Did all bottles arrive unbroken and were labels in good condition?	(Y)	N
15. Were all bottle labels complete(ID,Date,time,etc.)	(Y)	N
16. Did all bottle labels agree with custody papers?	(Y)	N
17. Were the correct containers used for the tests indicated:	(Y)	N
18. Were samples received at the correct pH?	Y	(N/A)
19. Was sufficient amount of sample sent for the tests indicated?	(Y)	N
20. Were bubbles absent in VOA samples?	Y	(N/A)

If NO, List Sample ID's and Lab #s: _____

21. Laboratory labeling verified by (initials): JSB Date: 7/21/10

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

August 23, 2010

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

RE: Analytical Results Case Narrative
Analytics # 67515
Harvard Quad Proj.# 223586

Dear Mr. Franklin;

Enclosed please find the analytical results for samples submitted for the above-mentioned project. The attached Cover Page lists the sample IDs, Lab tracking numbers and collection dates for the samples included in this deliverable.

Samples were analyzed for Polychlorinated Biphenyls (PCBs) by EPA Method 8082.

Unless otherwise noted in the Non-conformance Summary listed below, all of the quality control (QC) criteria including initial calibration, calibration verification, surrogate recovery, holding time and method accuracy/precision for these analyses were within acceptable limits.

This Level II data package has been assembled in the following order:

Case Narrative/Non-Conformance Summary
Sample Log Sheet - Cover Page
PCB Form 1 Data Sheet for Samples and Blanks
Chromatograms
PCB Form 10 Confirmation Results
PCB Form 3 MS/MSD (LCS) Recoveries
Chain of Custody (COC) Forms

QC NON-CONFORMANCE SUMMARY

Sample Receipt:
No exceptions.

PCBs by EPA Method 8082:
No results were reported below the quantitation limit.

Sample 67515-1 was reported at elevated quantitation limits due to sample matrix. The sample was a caulking material which limits the amount of sample extracted.

Surrogate Decachlorobiphenyl (DCB) could not be measured in sample 67515-1 due to sample matrix interferences. Surrogate Tetrachloro-m-xylene was in control. Results were reported with a comment to this affect.

The laboratory control sample duplicate had high recovery for PCB 1016 on column #2. In addition PCB 1016 had highRPDs. PCB 1260 was in control for both recovery and RPD on both analytical columns. Results were reported without qualifiacition.

If you have any questions on these results, please do not hesitate to contact me.

Sincerely,
ANALYTICS Environmental Laboratory, LLC

Stephen L. Knollmeyer
Laboratory Director

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

Report Number: 67515

Revision: Rev. 0

Re: Harvard Quad (Project No: 223586)

Enclosed are the results of the analyses on your sample(s). Samples were received on 13 August 2010 and analyzed for the tests listed. Samples were received in acceptable condition, with the exceptions noted below or on the chain of custody. These results pertain to samples as received by the laboratory and for the analytical tests requested on the chain of custody. The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. Please see individual reports for specific methodologies and references.

Lab Number	Sample Date	Station Location	Analysis	Comments
67515-1	08/13/10	HMS-QD-014	EPA 8082 (PCBs only)	

Sample Receipt Exceptions: None

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Virginia, Maryland, and is accredited by the Deparment of Defense (DOD) ELAP program. A list of actual certified parameters is available upon request.

If you have any questions on these results, please do not hesitate to contact us.

Authorized signature _____
Stephen L. Knollmeyer Lab. Director

Date 8/19/2010

Surrogate Compound Limits

	Matrix: Aqueous Units: % Recovery	Solid % Recovery	Method
Volatile Organic Compounds - Drinking Water			
1,4-Difluorobenzene	70-130		EPA 524.2
Bromofluorobenzene	70-130		
1,2-Dichlorobenzene-d4	70-130		
Volatile Organic Compounds			
1,2-Dichloroethane-d4	70-120	70-120	EPA 624/8260B
Toluene-d8	85-120	85-120	
Bromofluorobenzene	75-120	75-120	
Semi-Volatile Organic Compounds			
2-Fluorophenol	20-110	35-105	EPA 625/8270C
d5-Phenol	15-110	40-100	
d5-nitrobenzene	40-110	35-100	
2-Fluorobiphenyl	50-110	45-105	
2,4,6-Tribromophenol	40-110	40-125	
d14-p-terphenyl	50-130	30-125	
PAH's by SIM			
d5-nitrobenzene	21-110	35-110	EPA 8270C
2-Fluorobiphenyl	36-121	45-105	
d14-p-terphenyl	33-141	30-125	
Pesticides and PCBs			
2,4,5,6-Tetrachloro-m-xylene (TCX)	46-122	40-130	EPA 608/8082
Decachlorobiphenyl (DCB)	40-135	40-130	
Herbicides			
Dichloroacetic acid (DCAA)	30-150	30-150	
Gasoline Range Organics/TPH Gasoline			
Trifluorotoluene TFT (FID)	60-140	60-140	MEDEP 4217/EPA 8015
Bromofluorobenzene (BFB) (FID)	60-140	60-140	
Trifluorotoluene TFT (PID)	60-140	60-140	
Bromofluorobenzene (BFB) (PID)	60-140	60-140	
Diesel Range Organics/TPH Diesel			
m-terphenyl	60-140	60-140	MEDEP 4125/EPA 8015/CT ETPH
Volatile Petroleum Hydrocarbons			
2,5-Dibromotoluene (PID)	70-130	70-130	MADEP VPH May 2004 Rev1.1
2,5-Dibromotoluene (FID)	70-130	70-130	
Extracatable Petroleum Hydrocarbons			
1-chloro-octadecane (aliphatic)	40-140	40-140	MADEP EPH May 2004 Rev1.1
o-Terphenyl (aromatic)	40-140	40-140	
2-Fluorobiphenyl (Fractionation)	40-140	40-140	
2-Bromonaphthalene (fractionation)	40-140	40-140	

analytics environmental laboratory LLC

195 Commerce Way
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906

MassDEP Analytical Protocol Certification Form

Laboratory Name: Analytics Environmental Laboratory, LLC Project #: 67515

Project Location: Harvard Quad RTN:

This Form provides certifications for the following data set. Laboratory Sample ID Number(s):

67515-1

Matrices: ☐ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☒ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☐	6020 Metals CAM III D ☐	8082 PCB CAM V A ☒	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition conistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☒ No[1]

Data User Note: Data that achieve "Preseumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were ALL QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☒ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ **Position:** Laboratory Director

Printed Name: Stephen L. Knollmeyer **Date:** August 23, 2010

PCB
DATA SUMMARIES

analytics environmental laboratory LLC

195 Commerce Way
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

August 23, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: Lab QC

SAMPLE DATA

Lab Sample ID: B081610PSOX
Matrix: Soil
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 08/16/10
Analysis Date: 08/17/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	88	%
Decachlorobiphenyl	71	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

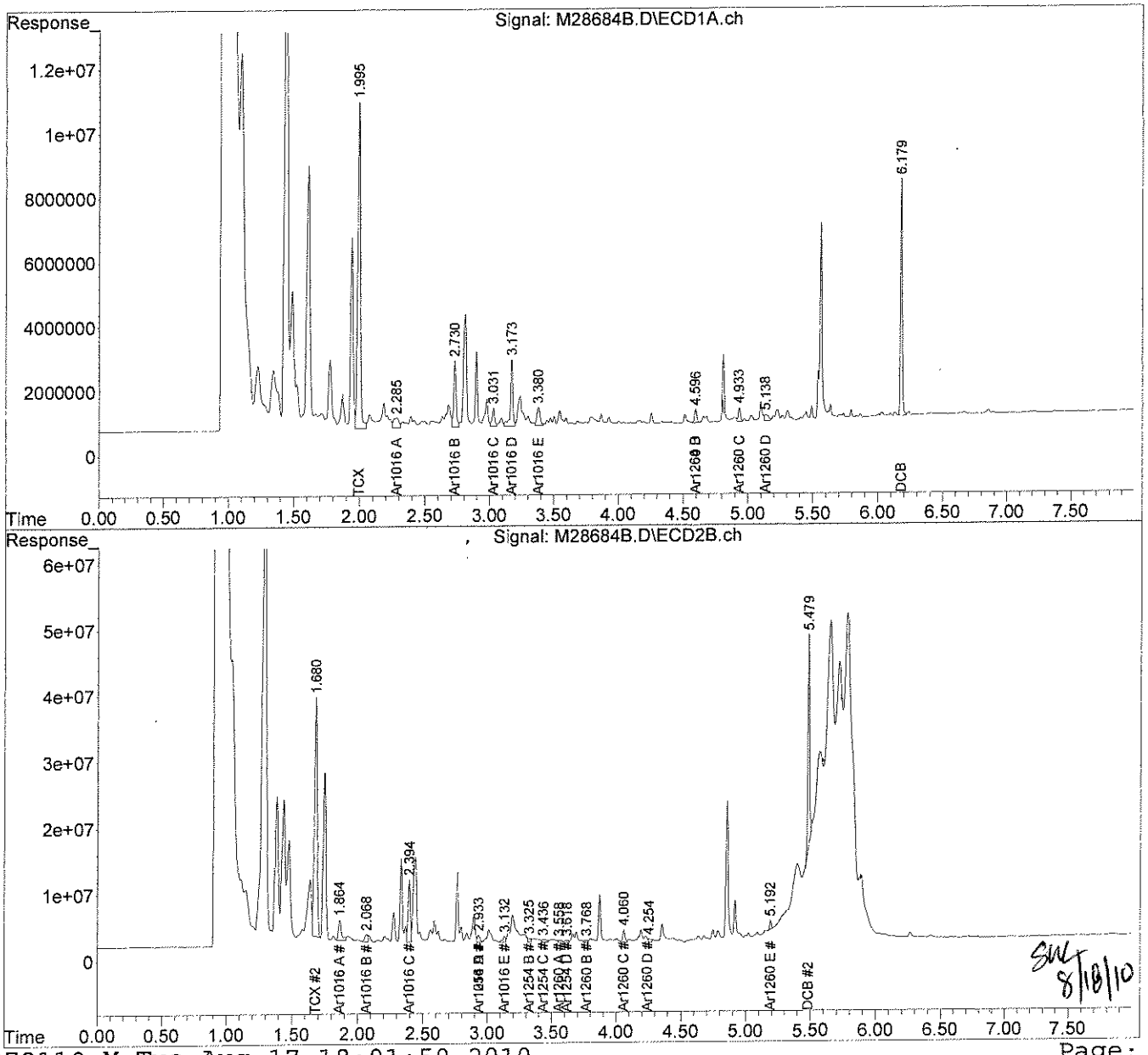
Authorized signature

Data Path : C:\msdchem\1\DATA\081710-M\
Data File : M28684B.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 17 Aug 2010 2:37 pm
Operator : MAG/JLL
Sample : B081610PSOX,,A/C
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Aug 17 18:01:08 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 8.17.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



SWT 8/18/10

analytics environmental laboratory LLC

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Portsmouth, New Hampshire 03801
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800-929-9906

Mr. George Franklin
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

August 23, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-014

SAMPLE DATA

Lab Sample ID: 67515-1
Matrix: Solid
Percent Solid: 97
Dilution Factor: 11
Collection Date: 08/13/10
Lab Receipt Date: 08/13/10
Extraction Date: 08/16/10
Analysis Date: 08/17/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	360	U
PCB-1221	360	U
PCB-1232	360	U
PCB-1242	360	U
PCB-1248	360	U
PCB-1254	360	U
PCB-1260	360	U
PCB-1262	360	U
PCB-1268	360	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	80	%
Decachlorobiphenyl	0*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.
*Decachlorobiphenyl surrgate could not be measured due to sample matrix interferences. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

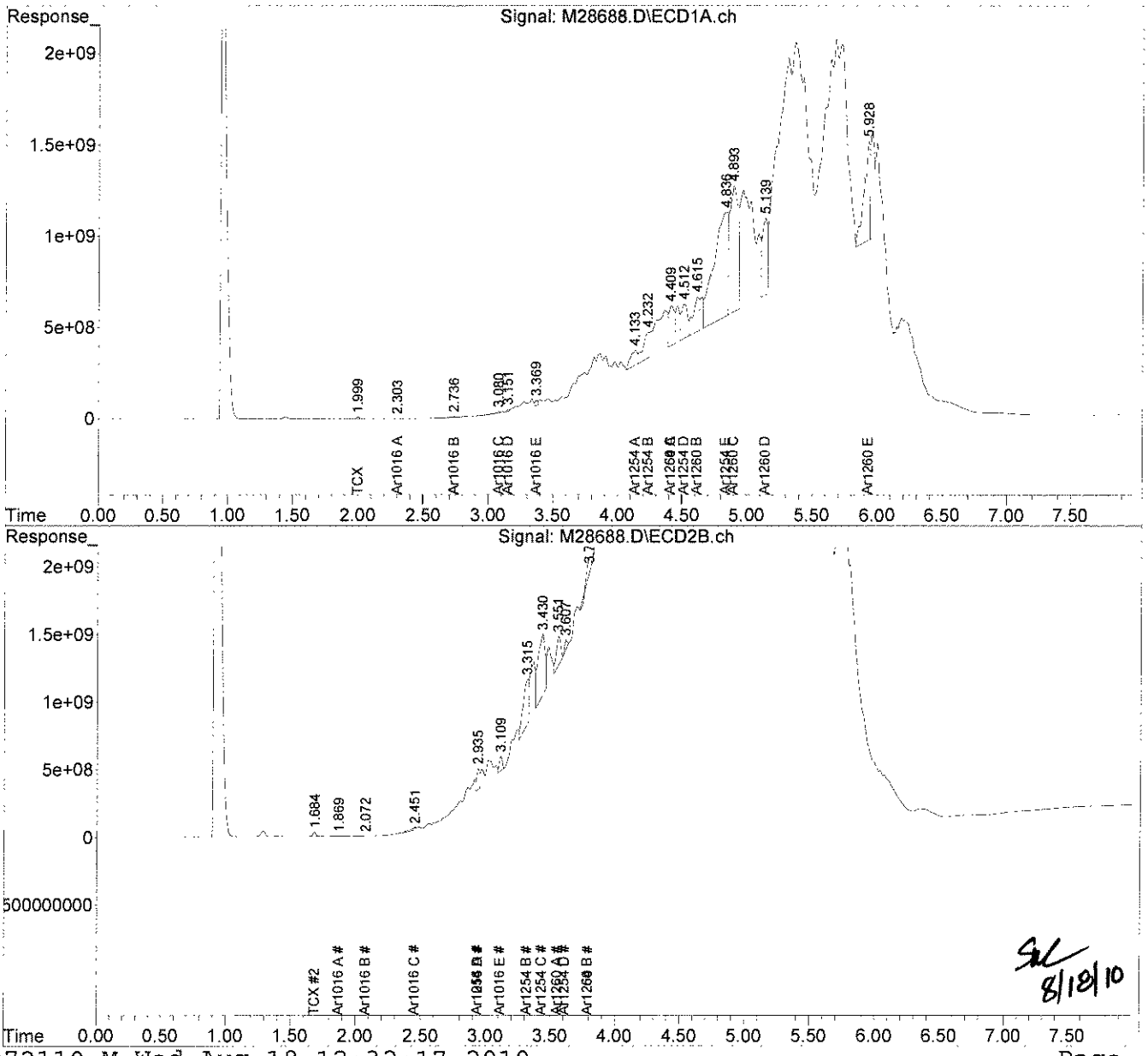
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\081710-M\
Data File : M28688.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 17 Aug 2010 3:18 pm
Operator : MAG/JLL
Sample : 67515-1,,A/C
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Aug 18 12:32:03 2010
Quant Method : C:\msdchem\1\METHODS\PCB072110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Thu Jul 22 07:51:29 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 08-18-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



SL 8/18/10

analytics environmental laboratory LLC

PCB
QC FORMS

AnalyticsLLC:AEL Documents LLC:Pkg Dividers:PCBQC.doc

PCB SOIL
SYSTEM MONITORING COMPOUNDS
SUMMARY

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67515

	Column #1				Column #2			
SAMPLE ID	SMC 1 (%)	#	SMC 2 (%)	#	SMC 1 (%)	#	SMC 2 (%)	#
B081610PSOX,,A/C	88		71		87		58	
L081610PSOX,,A/C	80		69		85		76	
LD081610PSOX,,A/C	90		76		93		82	
67515-1,,A/C	80		0	*	89		0	*

	Lower Limit	Upper Limit
SMC #1 = TCX	40	130
SMC #2 = DCB	40	130

\# Column to be used to flag recovery values outside of QC limits
* Values outside QC limits
D System Monitoring Compound diluted out

PCB SOIL
LABORATORY CONTROL SAMPLE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG: 67515

Non-spiked sample: B081610PSOX,,A/C

Spike: L081610PSOX,,A/C

Spike duplicate: LD081610PSOX,,A/C

COMPOUND	LCS SPIKE ADDED (ug/kg)	LCSD SPIKE ADDED (ug/kg)	LOWER LIMIT	UPPER LIMIT	RPD LIMIT	NON-SPIKE RESULT (ug/kg)	SPIKE RESULT (ug/kg)	SPIKE % REC	#	SPIKE DUP RESULT (ug/kg)	SPIKE DUP % REC	#	RPD	#
PCB 1016	200	200	65	140	30	0	180	90		252	126		33.5	*
PCB 1260	200	200	60	130	30	0	181	91		209	105		14.3	
PCB 1016 #2	200	200	65	140	30	0	230	115		321	161	*	33.3	*
PCB 1260 #2	200	200	60	130	30	0	196	98		224	112		13.4	

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

Comments: _____

_____

CHAIN OF CUSTODIES

Chain Of Custody Form

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, NH 03801
Phone (603) 436-5111
Fax (603) 430-2151

Project#: 223586 Proj. Name: Harvard Quad

Company: Woodard &Curran

Contact: ~~Ann~~ George Franklin

Address: 35 New England Business Center Suite 180
Andover, MA 01810

Phone: (978)557-8150 PO# Quote #

Sampler (Signature): [signature]

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract

Container Key
P=plastic G=glass

Station Identification	Sample Date	Sample Time	Analysis	Preservation: Unpres	4° C	HNO_3	H_2SO_4	HCL	Methanol	Other	Matrix	Container number/type		pH	Analytics Sample #
HMS-QD-014	8/13/10	10:55	PCB		X						caulk	1	G		67515-1

For Analytics Use Only Rev. 5 06/18/08

Samples were:
1) Shipped or hand-delivered
2) Temp blank °C 3°
3) Received in good condition (Y) or N
4) pH checked by: NA
5) Labels checked by: JBB 8/13/10

Received By:	Received By:	Received By:
Cold storage	[signature]	
Time: 14:10	Time: 15:15	Time:
Date: 8/13/10	Date: 8/13/10	Date:
Relinquished By Sampler: [signature]	Relinquished By: COLD STORAGE	Relinquished By: [signature] 8/13/10

Email Results to:
awallace@gfranklin@woodardcurran.com
jhamel@

Comments / Instructions:
Soxhlet/8082

Turnaround Time (TAT)
- [ ] 24hr*
- [ ] 48hr*
- [X] 72hr*
- [ ] ~~5 Days*~~
- [ ] 10 Days

*Fee may apply; lab approval required

Project Requirements:
*Fee may apply

Report Type:
- [X] MCP* [X] Level II*
- [ ] CTRCP* [ ] Level III*
- [ ] DOD* [ ] Level IV*
- [ ] Standard

State:
- [ ] NH
- [X] MA
- [ ] ME
- [ ] CT
- [ ] RI

Other:

State Standard: (eg. S-1 or GW-1)

EDD Required: Y* N
Type: PDF

JBB 8/13/10

Analytics\AEL Documents\AEL COC

ANALYTICS SAMPLE RECEIPT CHECKLIST

analytics environmental laboratory LLC

AEL LAB#: 67515 | COOLER NUMBER: N/A

CLIENT: WOODARD & CURRAN | NUMBER OF COOLERS: 1

PROJECT: HARVARD QUAD | DATE RECEIVED: 08/13/10

A: PRELIMINARY EXAMINATION: | DATE COOLER OPENED: 08/13/10

1. Cooler received by(initials): (A) | Date Received: 08/13/10

2. Circle one: (Hand delivered) Shipped
(If so, skip 3)

3. Did cooler come with a shipping slip?	Y	NA
3a. Enter carrier name and airbill number here:	N/A	
4. Were custody seals on the outside of cooler?	Y	(N)
How many & where: N/A Seal Date: N/A Seal Name:		N/A
5. Did the custody seals arrive unbroken and intact upon arrival?	Y	NA
6. COC#: N/A		
7. Were Custody papers filled out properly (ink,signed, etc)?	(Y)	N
8. Were custody papers sealed in a plastic bag?	(Y)	N
9. Did you sign the COC in the appropriate place?	(Y)	N
10. Was the project identifiable from the COC papers?	(Y)	N
11. Was enough ice used to chill the cooler? (Y) N Temp. of cooler:		3°

B. Log-In: Date samples were logged in: 08/13/10 By: (A)

12. Type of packing in cooler (bubble wrap, popcorn)	(Y)	N
13. Were all bottles sealed in separate plastic bags?	(Y)	N
14. Did all bottles arrive unbroken and were labels in good condition?	(Y)	N
15. Were all bottle labels complete(ID,Date,time,etc.)	(Y)	N
16. Did all bottle labels agree with custody papers?	(Y)	N
17. Were the correct containers used for the tests indicated:	(Y)	N
18. Were samples received at the correct pH?	Y	NA
19. Was sufficient amount of sample sent for the tests indicated?	(Y)	N
20. Were bubbles absent in VOA samples?	Y	NA

If NO, List Sample ID's and Lab #s: _____

21. Laboratory labeling verified by (initials): JCB Date: 8/13/10

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

September 16, 2010

Ms. Amy Wallace
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

RE: Analytical Results Case Narrative
Analytics # 67742
Peabody Terrace Proj.# 223586

Dear Ms. Wallace;

Enclosed please find the analytical results for samples submitted for the above-mentioned project. The attached Cover Page lists the sample IDs, Lab tracking numbers and collection dates for the samples included in this deliverable.

Samples were analyzed for Polychlorinated Biphenyls (PCBs) by EPA Method 8082.

Unless otherwise noted in the Non-conformance Summary listed below, all of the quality control (QC) criteria including initial calibration, calibration verification, surrogate recovery, holding time and method accuracy/precision for these analyses were within acceptable limits.

This Level II data package has been assembled in the following order:

Case Narrative/Non-Conformance Summary
Sample Log Sheet - Cover Page
PCB Form 1 Data Sheet for Samples and Blanks
Chromatograms
PCB Form 10 Confirmation Results
PCB Form 3 MS/MSD (LCS) Recoveries
Chain of Custody (COC) Forms

QC NON-CONFORMANCE SUMMARY

Sample Receipt:
No exceptions.

PCBs by EPA Method 8082:
No results were reported below the quantitation limit.

All samples except 67742-17 and 67742-18 were reported at elevated quantitation limits due to sample matrix. Sample 67742-11 required dilution due to concentrations of PCB 1254 that exceeded the calibration range of the instrument.

Several samples 67742-9, 67742-10, 67742-12, 67742-14 and 67742-11 had surrogate Decachlorobiphenyl (DCB) affected by sample matrix. In some cases the surrogate result could not be determined. Results were reported with a comment to this affect.

The closing continuing calibration standard (file#M30093SC) had low recovery for Decachlorobiphenyl on column#2. Column#1 was in control for all analytes. Results were reported without qualification.

If you have any questions on these results, please do not hesitate to contact me.

Sincerely,
ANALYTICS Environmental Laboratory, LLC

Stephen L. Knollmeyer
Laboratory Director

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

Ms. Amy Wallace
Woodard & Curran
35 NE Business Center Suite 180
Andover MA 01810

Report Number: 67742

Revision: Rev. 0

Re: Harvard Quad (Project No: 223586)

Enclosed are the results of the analyses on your sample(s). Samples were received on 10 September 2010 and analyzed for the tests listed. Samples were received in acceptable condition, with the exceptions noted below or on the chain of custody. These results pertain to samples as received by the laboratory and for the analytical tests requested on the chain of custody. The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report. Please see individual reports for specific methodologies and references.

Sample Analysis: The attached pages detail the Client Sample IDs, Lab Sample IDs, and Analyses requested

Sample Receipt Exceptions: None

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine, Massachusetts, Connecticut, Rhode Island, Virginia, Maryland, and is accredited by the Deparment of Defense (DOD) ELAP program. A list of actual certified parameters is available upon request.

If you have any questions on these results, please do not hesitate to contact us.

Authorized signature _____
Stephen L. Knollmeyer Lab. Director

Date 09/16/2010

analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906
www.analyticslab.com

CLIENT: Woodard & Curran **REPORT NUMBER: 67742** **REV: Rev. 0**

PROJECT: Harvard Quad (Project No: 223586)

Lab Number	Sample Date	Station Location	Analysis	Comments
67742-1	09/09/10	HMS-QD-015	EPA 8082 (PCBs only)	
67742-2	09/09/10	HMS-QD-016	EPA 8082 (PCBs only)	
67742-3	09/09/10	HMS-QD-017	EPA 8082 (PCBs only)	
67742-4	09/09/10	HMS-QD-018	EPA 8082 (PCBs only)	
67742-5	09/09/10	HMS-QD-019	EPA 8082 (PCBs only)	
67742-6	09/09/10	HMS-QD-020	EPA 8082 (PCBs only)	
67742-7	09/09/10	HMS-QD-021	EPA 8082 (PCBs only)	
67742-8	09/09/10	HMS-QD-022	EPA 8082 (PCBs only)	
67742-9	09/09/10	HMS-QD-023	EPA 8082 (PCBs only)	
67742-10	09/09/10	HMS-QD-024D	EPA 8082 (PCBs only)	
67742-11	09/09/10	HMS-QD-025	EPA 8082 (PCBs only)	
67742-12	09/09/10	HMS-QD-026	EPA 8082 (PCBs only)	
67742-13	09/09/10	HMS-QD-027	EPA 8082 (PCBs only)	
67742-14	09/09/10	HMS-QD-028	EPA 8082 (PCBs only)	
67742-15	09/09/10	HMS-QD-029	EPA 8082 (PCBs only)	
67742-16	09/09/10	HMS-QD-030	EPA 8082 (PCBs only)	
67742-17	09/09/10	HMS-QD-031	EPA 8082 (PCBs only)	
67742-18	09/09/10	HMS-QD-032	EPA 8082 (PCBs only)	

Analytics environmental laboratory LLC

195 Commerce Way
Portsmouth, New Hampshire 03801
603-436-5111 Fax 603-430-2151
800-929-9906

MassDEP Analytical Protocol Certification Form

Laboratory Name: Analytics Environmental Laboratory, LLC Project #: 67742

Project Location: Harvard Quad RTN:

This Form provides certifications for the following data set. Laboratory Sample ID Number(s):

67742-1 through 67742-18

Matrices: ☐ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☒ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☐	6020 Metals CAM III D ☐	8082 PCB CAM V A ☒	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition conistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

Data User Note: Data that achieve "Preseumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were ALL QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☒ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ **Position:** Assistant Laboratory Director

Printed Name: Melissa Gulli **Date:** September 16, 2010

Surrogate Compound Limits

	Matrix: Aqueous Units: % Recovery	Solid % Recovery	Method
Volatile Organic Compounds - Drinking Water			
1,4-Difluorobenzene	70-130		EPA 524.2
Bromofluorobenzene	70-130		
1,2-Dichlorobenzene-d4	70-130		
Volatile Organic Compounds			
1,2-Dichloroethane-d4	70-120	70-120	EPA 624/8260B
Toluene-d8	85-120	85-120	
Bromofluorobenzene	75-120	75-120	
Semi-Volatile Organic Compounds			
2-Fluorophenol	20-110	35-105	EPA 625/8270C
d5-Phenol	15-110	40-100	
d5-nitrobenzene	40-110	35-100	
2-Fluorobiphenyl	50-110	45-105	
2,4,6-Tribromophenol	40-110	40-125	
d14-p-terphenyl	50-130	30-125	
PAH's by SIM			
d5-nitrobenzene	21-110	35-110	EPA 8270C
2-Fluorobiphenyl	36-121	45-105	
d14-p-terphenyl	33-141	30-125	
Pesticides and PCBs			
2,4,5,6-Tetrachloro-m-xylene (TCX)	46-122	40-130	EPA 608/8082
Decachlorobiphenyl (DCB)	40-135	40-130	
Herbicides			
Dichloroacetic acid (DCAA)	30-150	30-150	
Gasoline Range Organics/TPH Gasoline			
Trifluorotoluene TFT (FID)	60-140	60-140	MEDEP 4217/EPA 8015
Bromofluorobenzene (BFB) (FID)	60-140	60-140	
Trifluorotoluene TFT (PID)	60-140	60-140	
Bromofluorobenzene (BFB) (PID)	60-140	60-140	
Diesel Range Organics/TPH Diesel			
m-terphenyl	60-140	60-140	MEDEP 4125/EPA 8015/CT ETPH
Volatile Petroleum Hydrocarbons			
2,5-Dibromotoluene (PID)	70-130	70-130	MADEP VPH May 2004 Rev1.1
2,5-Dibromotoluene (FID)	70-130	70-130	
Extracatable Petroleum Hydrocarbons			
1-chloro-octadecane (aliphatic)	40-140	40-140	MADEP EPH May 2004 Rev1.1
o-Terphenyl (aromatic)	40-140	40-140	
2-Fluorobiphenyl (Fractionation)	40-140	40-140	
2-Bromonaphthalene (fractionation)	40-140	40-140	

PCB
DATA SUMMARIES

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: Lab QC

SAMPLE DATA

Lab Sample ID: B091010PSOX2
Matrix: Soil
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	110	%
Decachlorobiphenyl	65	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

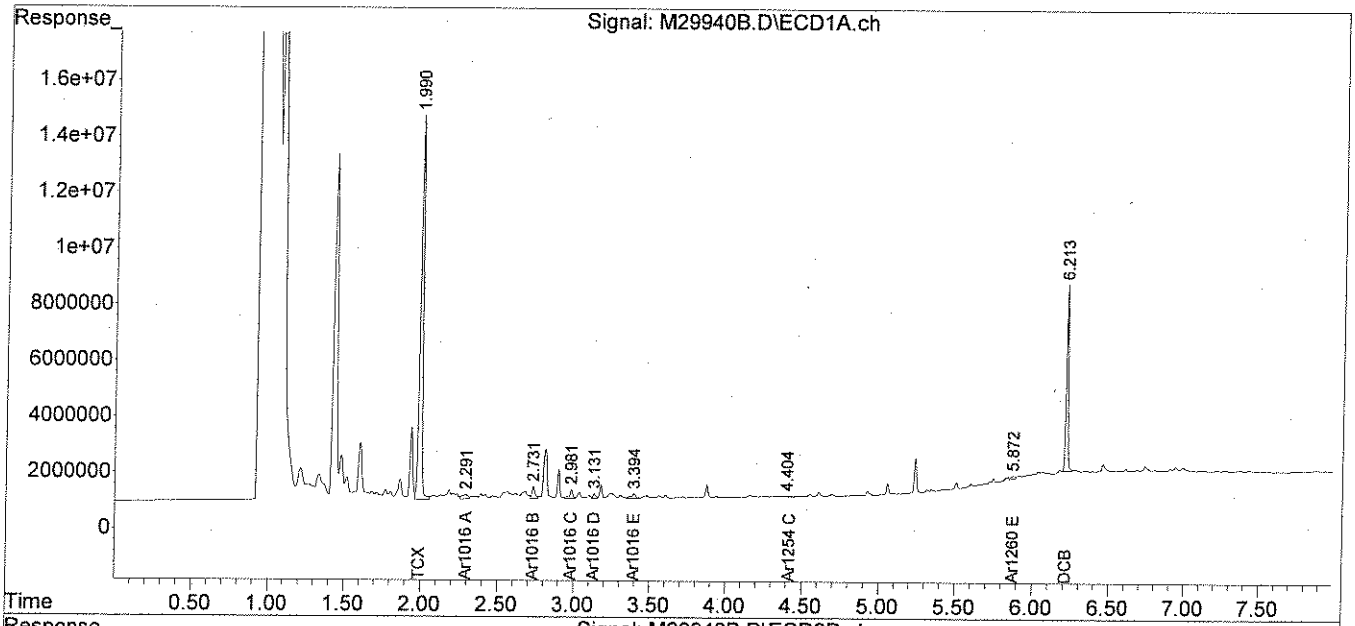
Authorized signature

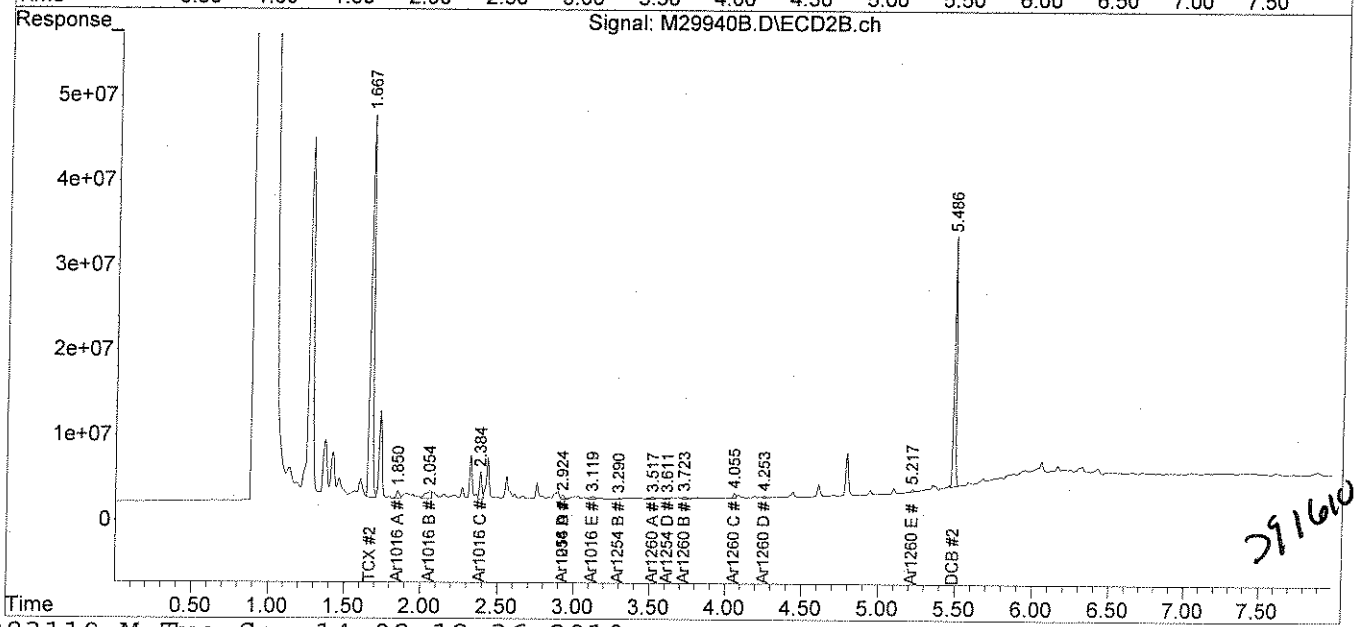
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29940B.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 13 Sep 2010 12:07 pm
Operator : JK
Sample   : B091010PSOX2,,A/C
Misc   : SOIL
ALS Vial : 6   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:11:47 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

09-14-10

Volume Inj.   : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





091610

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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: Lab QC

SAMPLE DATA

Lab Sample ID: B091010PSOX
Matrix: Soil
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date:
Lab Receipt Date:
Extraction Date: 09/10/10
Analysis Date: 09/14/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	84	%
Decachlorobiphenyl	55	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

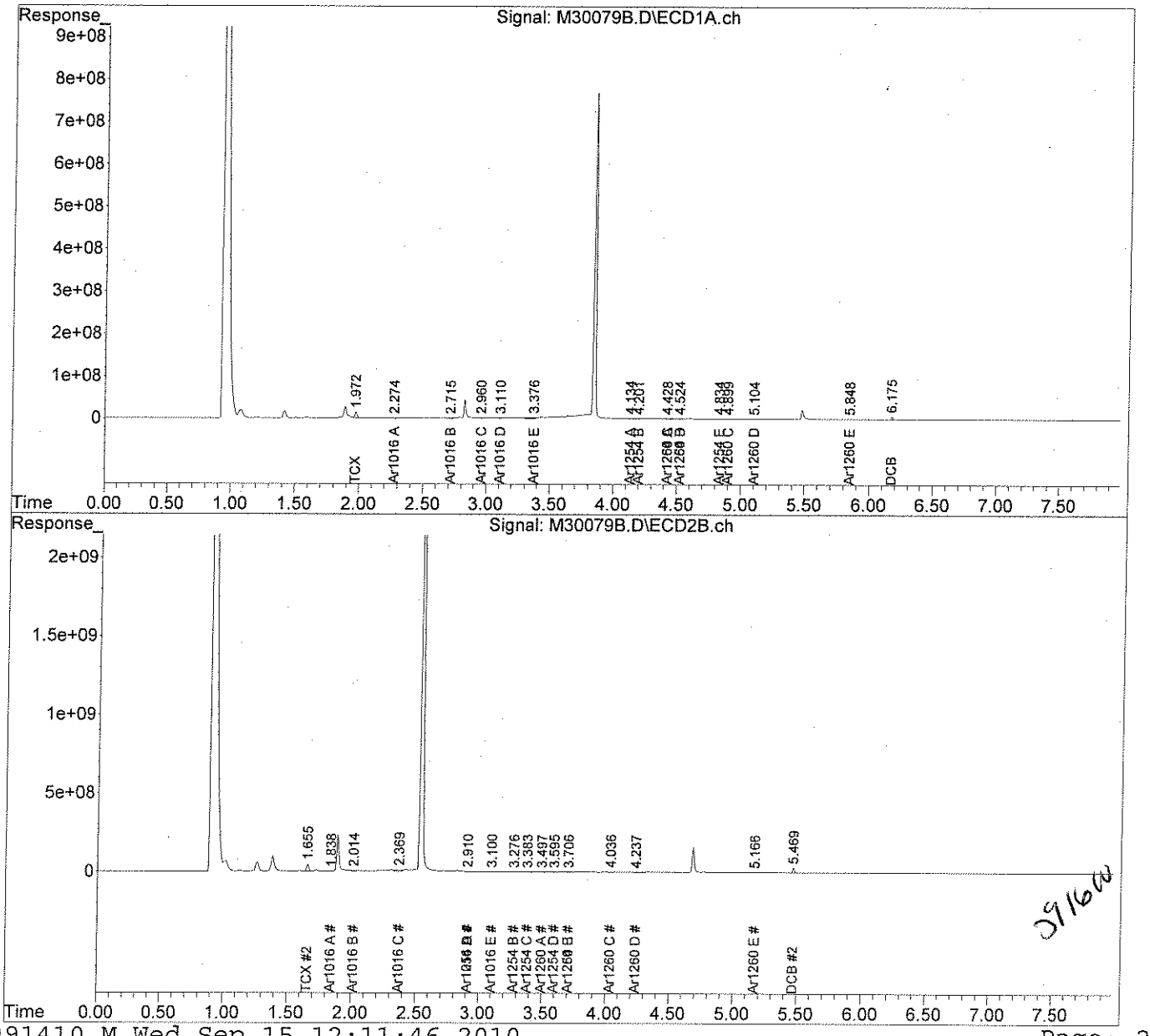
PCB EXT Report

Authorized signature

Data Path : C:\msdchem\1\DATA\091410-M\
Data File : M30079B.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 14 Sep 2010   8:30 pm
Operator : JK
Sample   : B091010PSOX,,A/C
Misc   : SOIL
ALS Vial : 46   Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 15 12:11:33 2010
Quant Method : C:\msdchem\1\METHODS\PCB091410.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Tue Sep 14 15:46:07 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-015

SAMPLE DATA

Lab Sample ID: 67742-1
Matrix: Solid
Percent Solid: 93
Dilution Factor: 8
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	260	U
PCB-1221	260	U
PCB-1232	260	U
PCB-1242	260	U
PCB-1248	260	U
PCB-1254	260	**2380**
PCB-1260	260	U
PCB-1262	260	U
PCB-1268	260	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	110	%
Decachlorobiphenyl	58	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-1,,A/C
Data File: M29943.D
Dilution Factor: 8.3

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	2375	1737	31.0	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

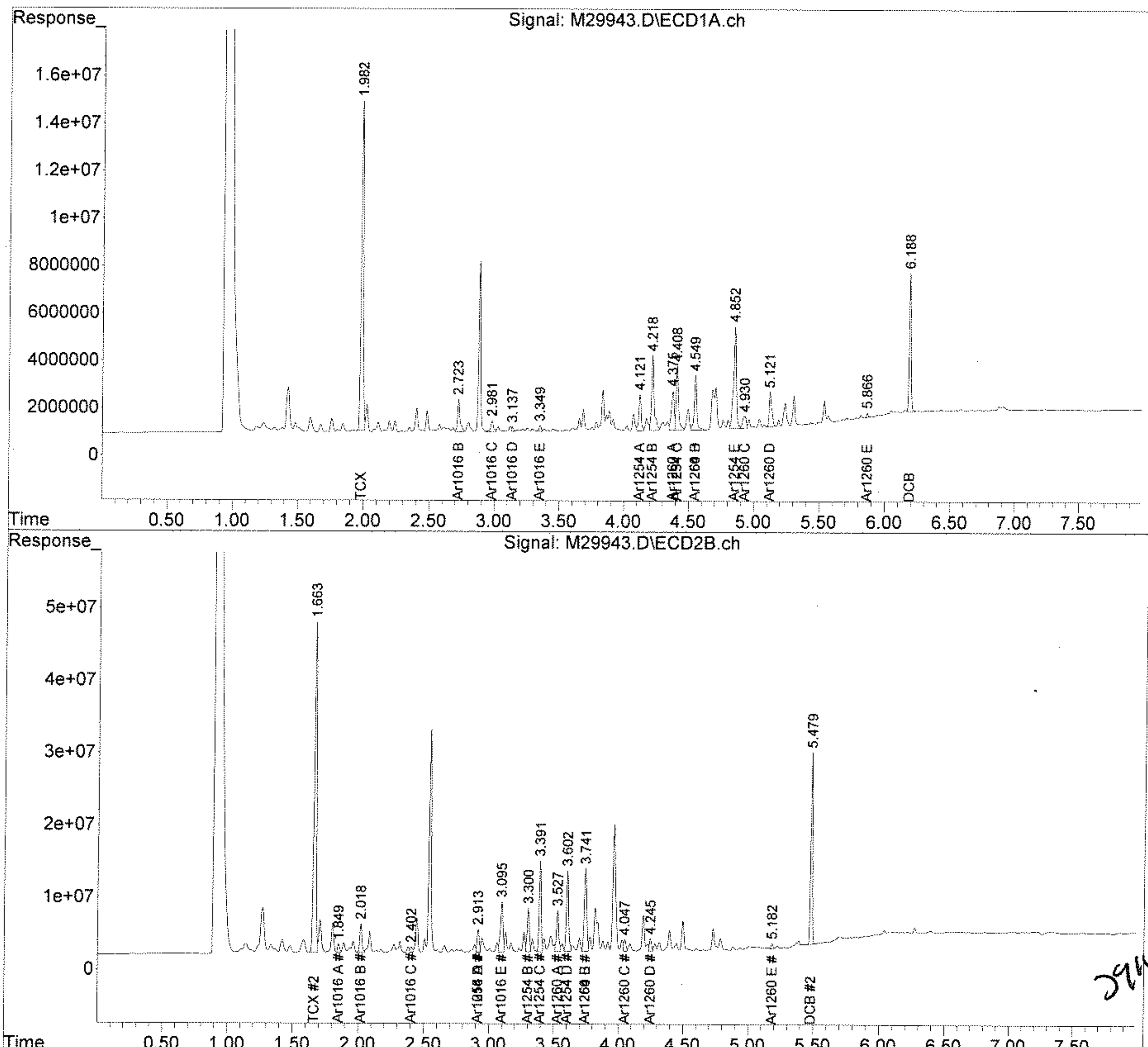
PCB FORM 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29943.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 12:38 pm
Operator : JK
Sample : 67742-1,,A/C (~~Sig #1), 67742-1 (Sig~~ #2)
Misc : SOIL
ALS Vial : 9 Sample Multiplier: 1

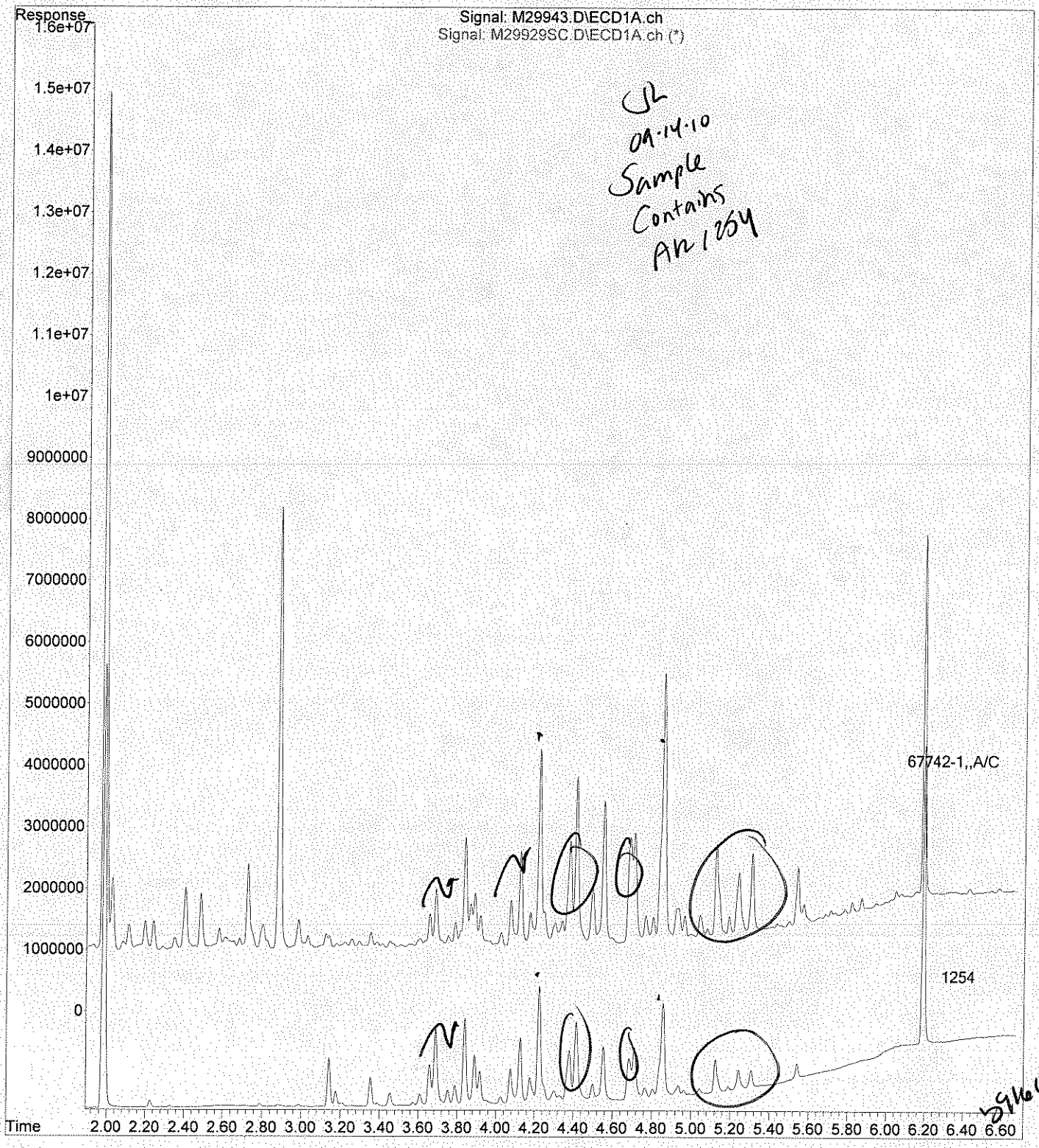
Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:18:13 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



PCB083110.M Tue Sep 14 08:18:30 2010 Page: 2

File :C:\msdchem\1\DATA\091310-M\M29943.D
Operator : JK
Acquired : 13 Sep 2010 12:38 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67742-1,,A/C
Misc Info : SOIL
Vial Number: 9



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-016

SAMPLE DATA

Lab Sample ID: 67742-2
Matrix: Solid
Percent Solid: 99
Dilution Factor: 7
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	230	U
PCB-1221	230	U
PCB-1232	230	U
PCB-1242	230	U
PCB-1248	230	U
PCB-1254	230	U
PCB-1260	230	U
PCB-1262	230	U
PCB-1268	230	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	91	%
Decachlorobiphenyl	75	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

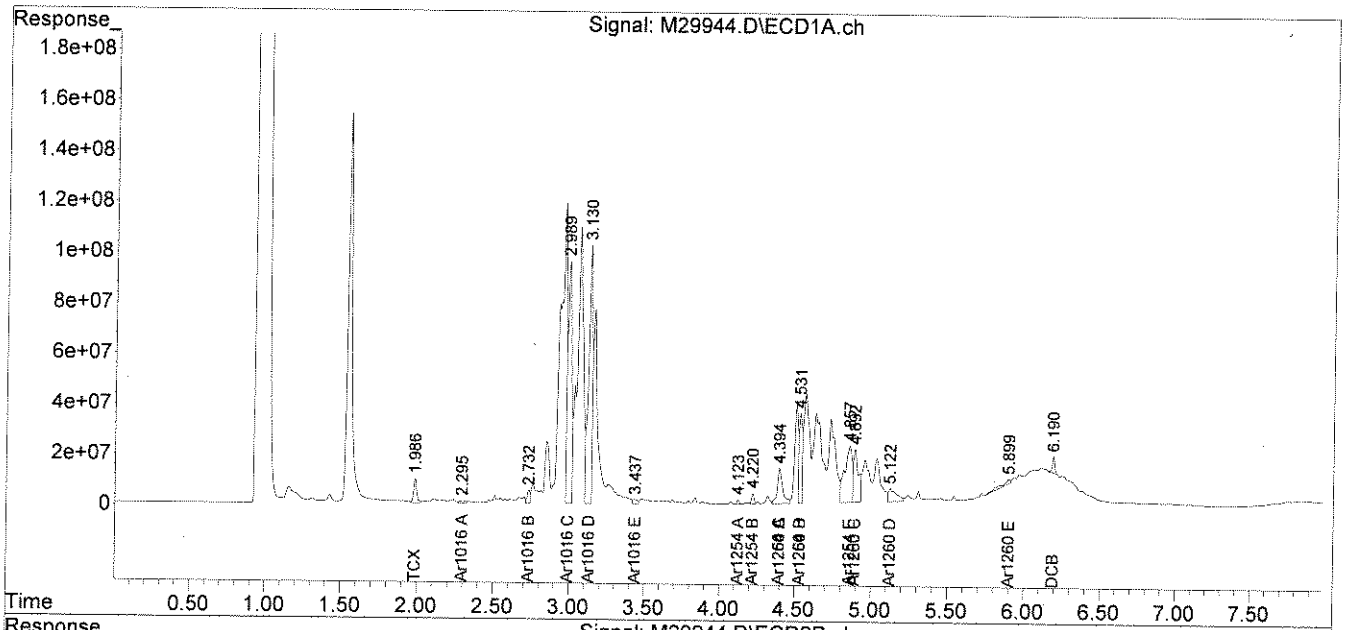
Quantitation Report (QT Reviewed)

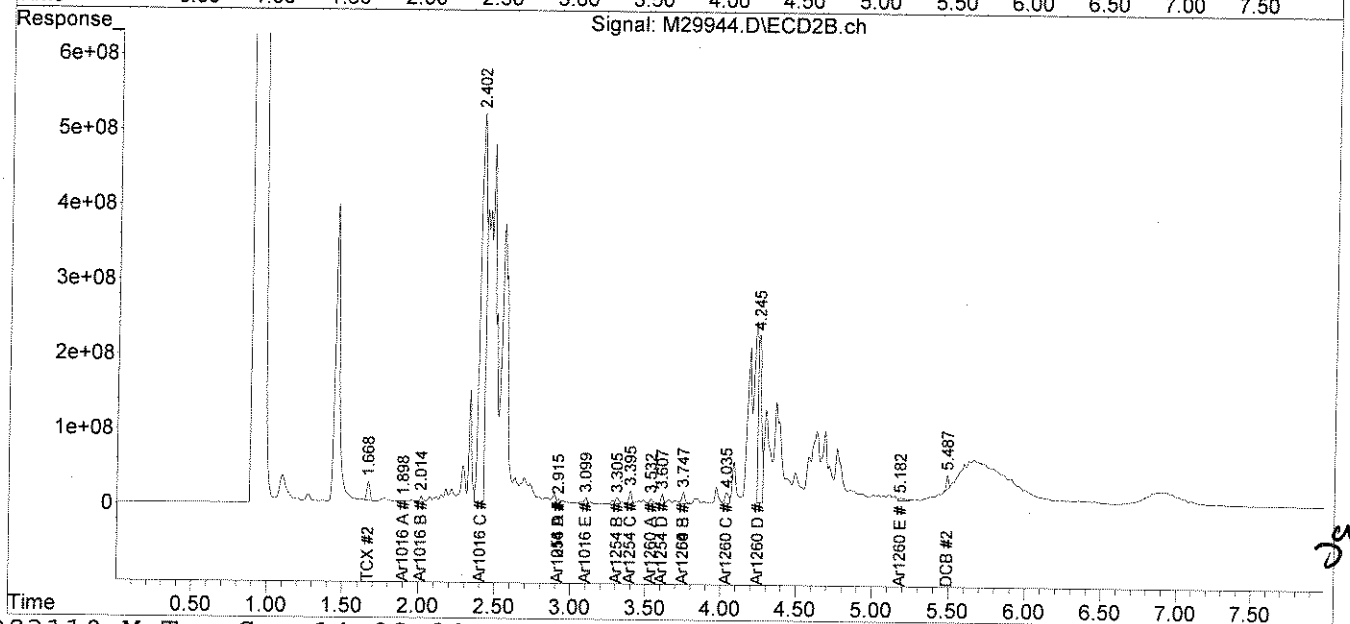
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29944.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 12:48 pm
Operator : JK
Sample : 67742-2,,A/C (~~Sig #1~~); ~~67742-2 (Sig #2)~~
Misc : SOIL
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:31:25 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um

09-14-11





291610

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-017

SAMPLE DATA

Lab Sample ID: 67742-3
Matrix: Solid
Percent Solid: 99
Dilution Factor: 6
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	200	U
PCB-1221	200	U
PCB-1232	200	U
PCB-1242	200	U
PCB-1248	200	U
PCB-1254	200	U
PCB-1260	200	U
PCB-1262	200	U
PCB-1268	200	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	62	%
Decachlorobiphenyl	43	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

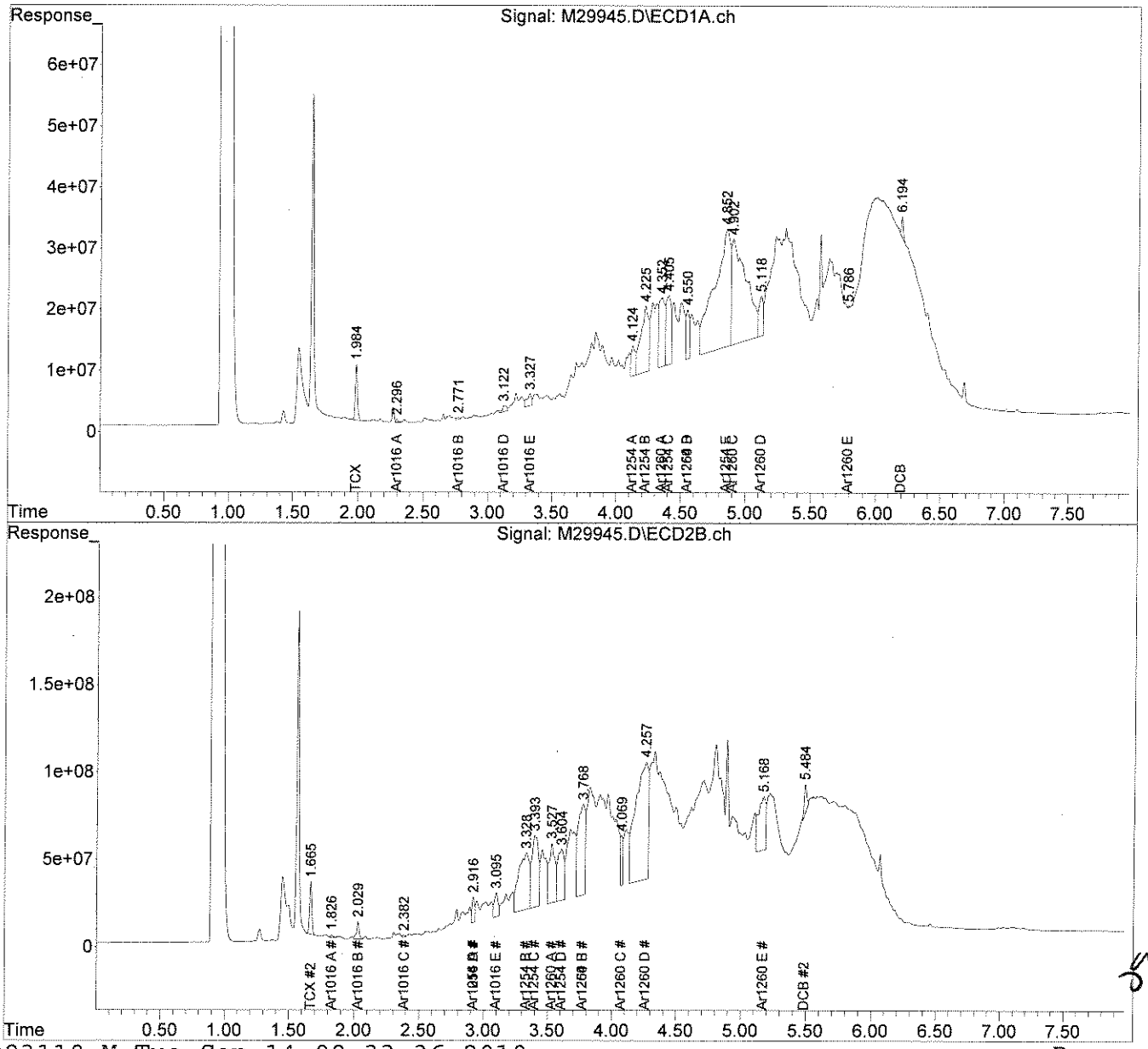
Authorized signature

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29945.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 12:58 pm
Operator : JK
Sample : 67742-3,,A/C (~~Sig #1~~), ~~67742-3 (Sig #2~~)
Misc : SOIL
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:33:27 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-018

SAMPLE DATA

Lab Sample ID: 67742-4
Matrix: Solid
Percent Solid: 97
Dilution Factor: 10
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	U
PCB-1260	330	**1810**
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	94	%
Decachlorobiphenyl	42	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-4,,A/C
Data File: M29946.D
Dilution Factor: 9.9

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1260	1714	1805	5.1	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

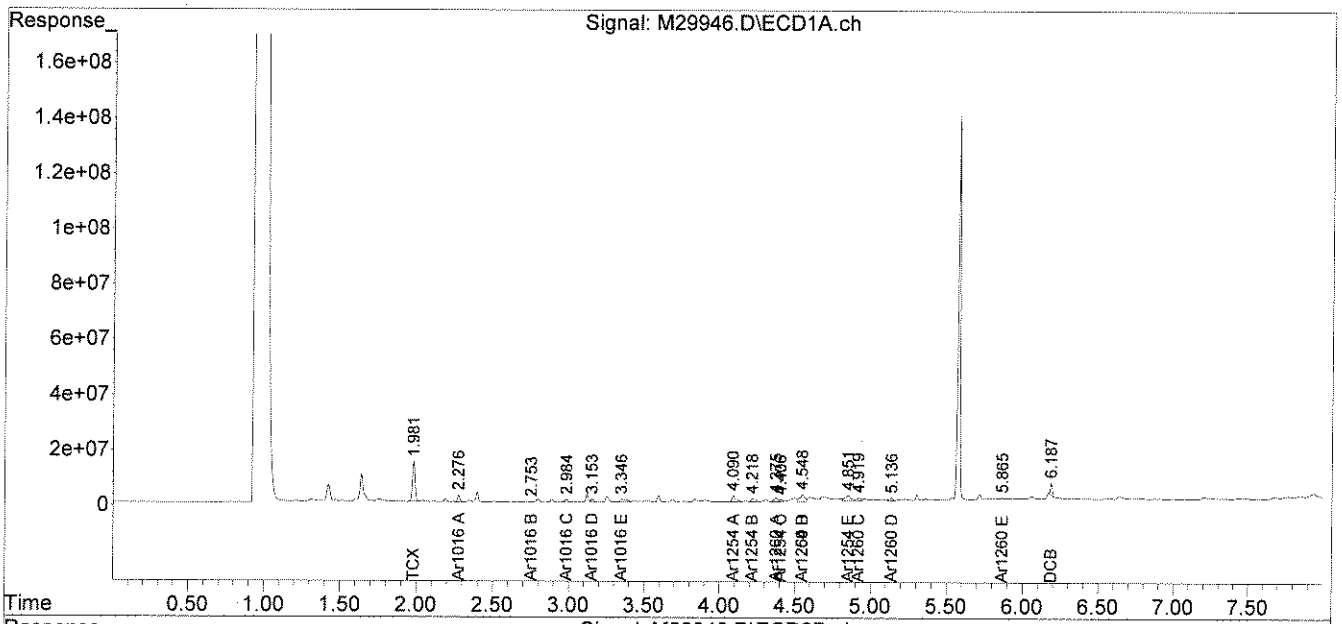
Quantitation Report (QT Reviewed)

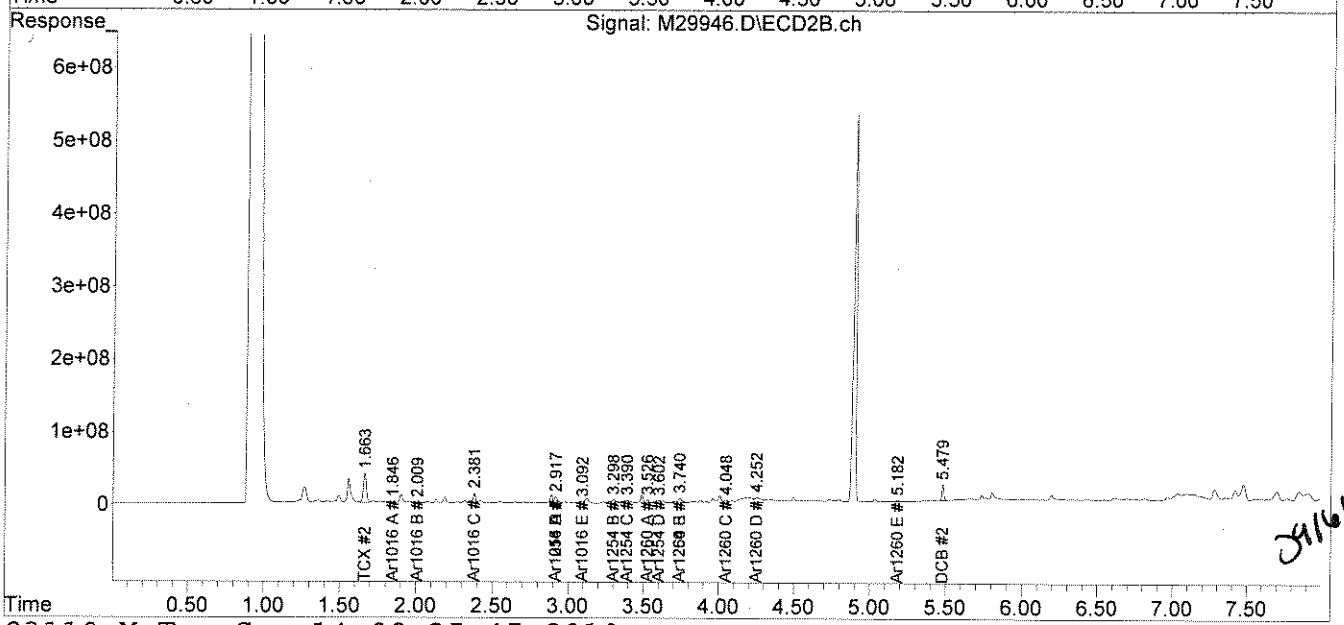
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29946.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 1:09 pm
Operator : JK
Sample : 67742-4,,A/C (~~Sig #1~~); ~~67742-4 (Sig~~ #2)
Misc : SOIL
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:35:31 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um

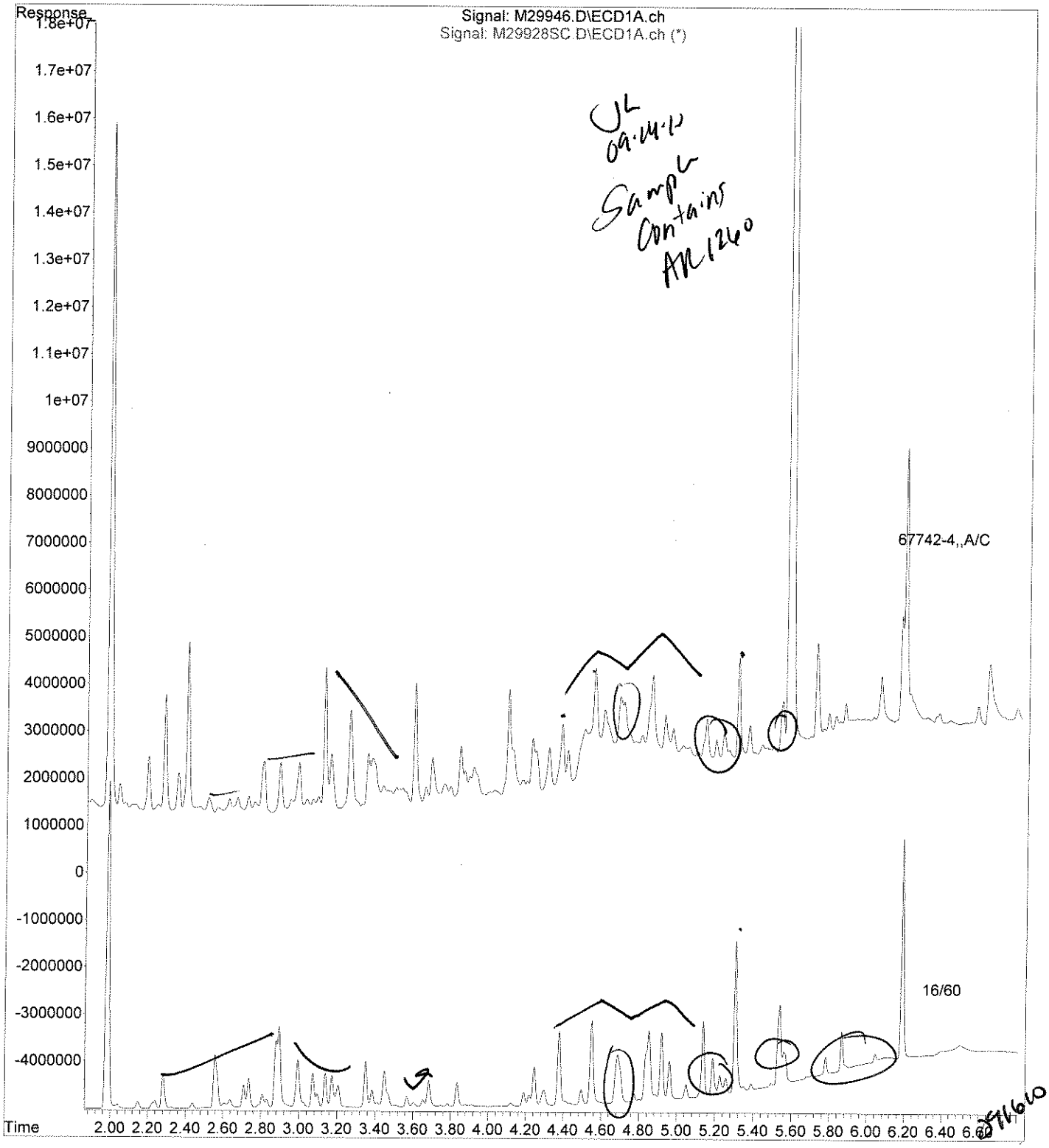
JK 09-14-10





9/16/10

File :C:\msdchem\1\DATA\091310-M\M29946.D
Operator : JK
Acquired : 13 Sep 2010 1:09 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67742-4,,A/C
Misc Info : SOIL
Vial Number: 12



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-019

SAMPLE DATA

Lab Sample ID: 67742-5
Matrix: Solid
Percent Solid: 98
Dilution Factor: 8
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	260	U
PCB-1221	260	U
PCB-1232	260	U
PCB-1242	260	U
PCB-1248	260	U
PCB-1254	260	**847**
PCB-1260	260	U
PCB-1262	260	U
PCB-1268	260	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	107	%
Decachlorobiphenyl	50	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-5,,A/C
Data File: M29947.D
Dilution Factor: 8.0

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	829	847	2.1	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

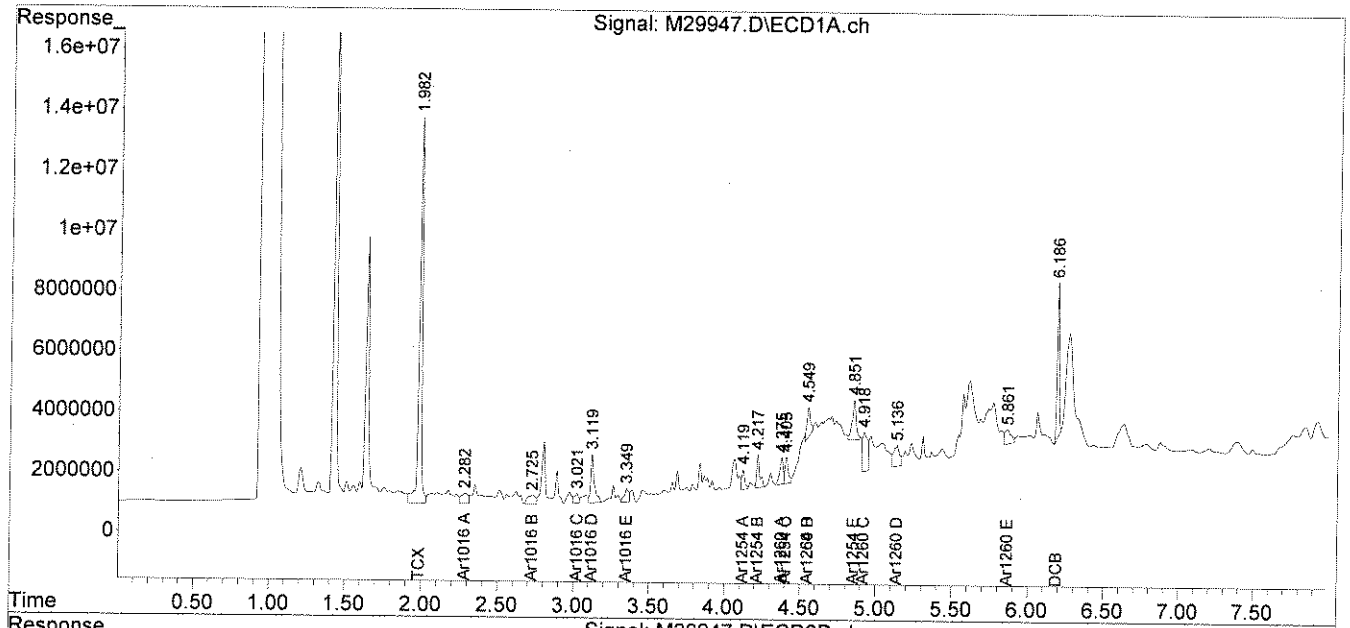
Quantitation Report (QT Reviewed)

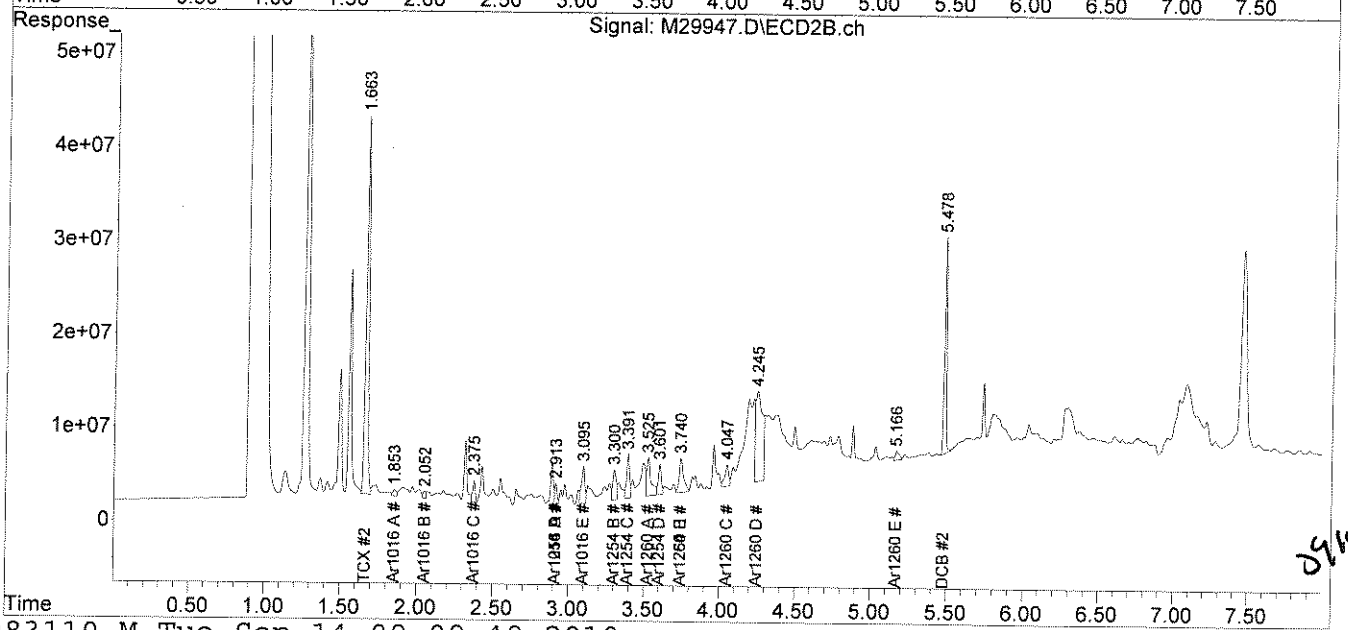
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29947.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 1:19 pm
Operator : JK
Sample : 67742-5,,A/C ~~(Sig #1); 67742-5 (Sig #2)~~
Misc : SOIL
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:09:40 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JR 09-14-10

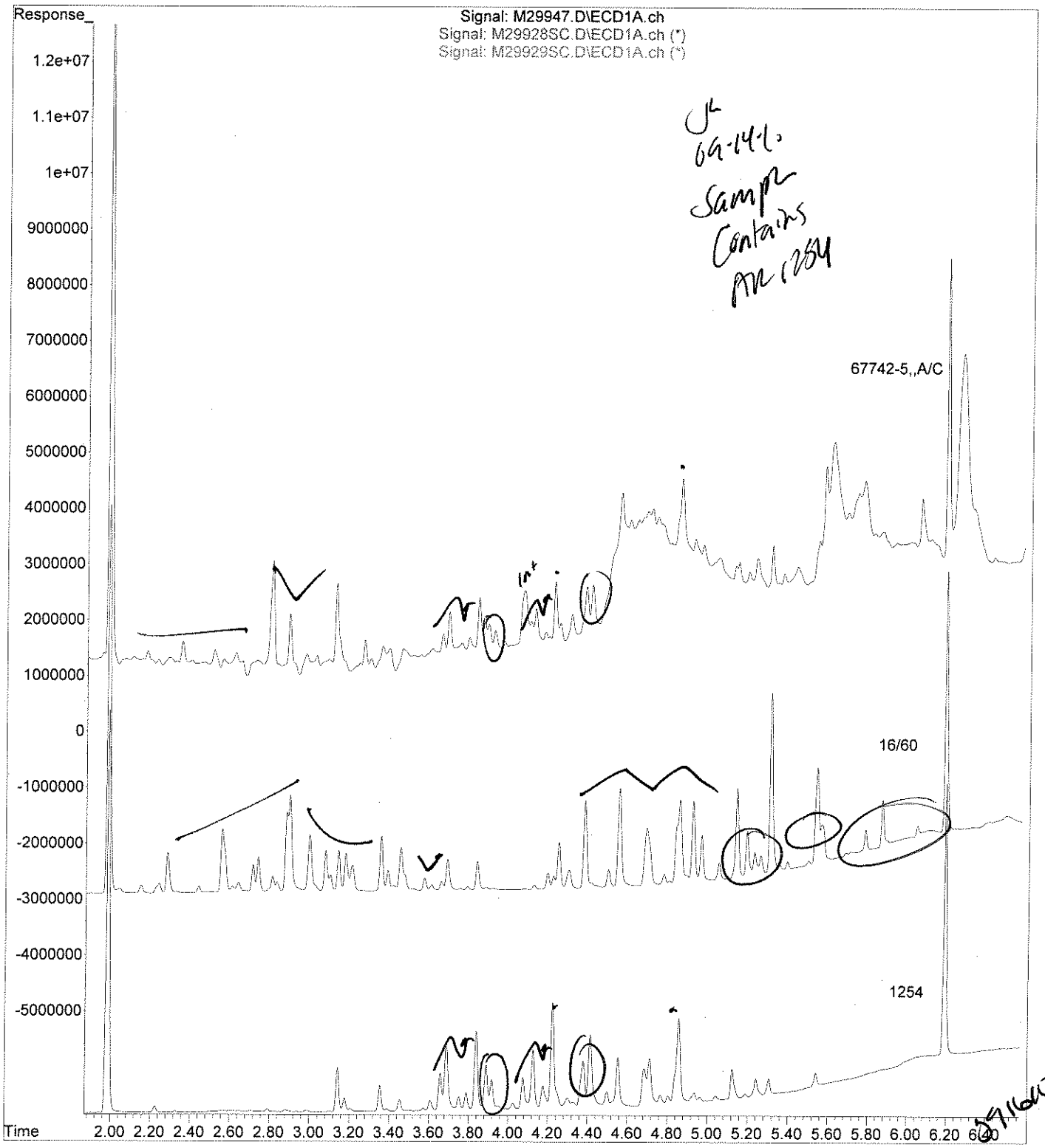
Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





09/16/10

File :C:\msdchem\1\DATA\091310-M\M29947.D
Operator : JK
Acquired : 13 Sep 2010 1:19 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67742-5,,A/C
Misc Info : SOIL
Vial Number: 13



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-020

SAMPLE DATA

Lab Sample ID: 67742-6
Matrix: Solid
Percent Solid: 98
Dilution Factor: 6
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	200	U
PCB-1221	200	U
PCB-1232	200	U
PCB-1242	200	U
PCB-1248	200	U
PCB-1254	200	U
PCB-1260	200	**1430**
PCB-1262	200	U
PCB-1268	200	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	98	%
Decachlorobiphenyl	58	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-6,,A/C
Data File: M29948.D
Dilution Factor: 5.7

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1260	1425	1344	5.8	

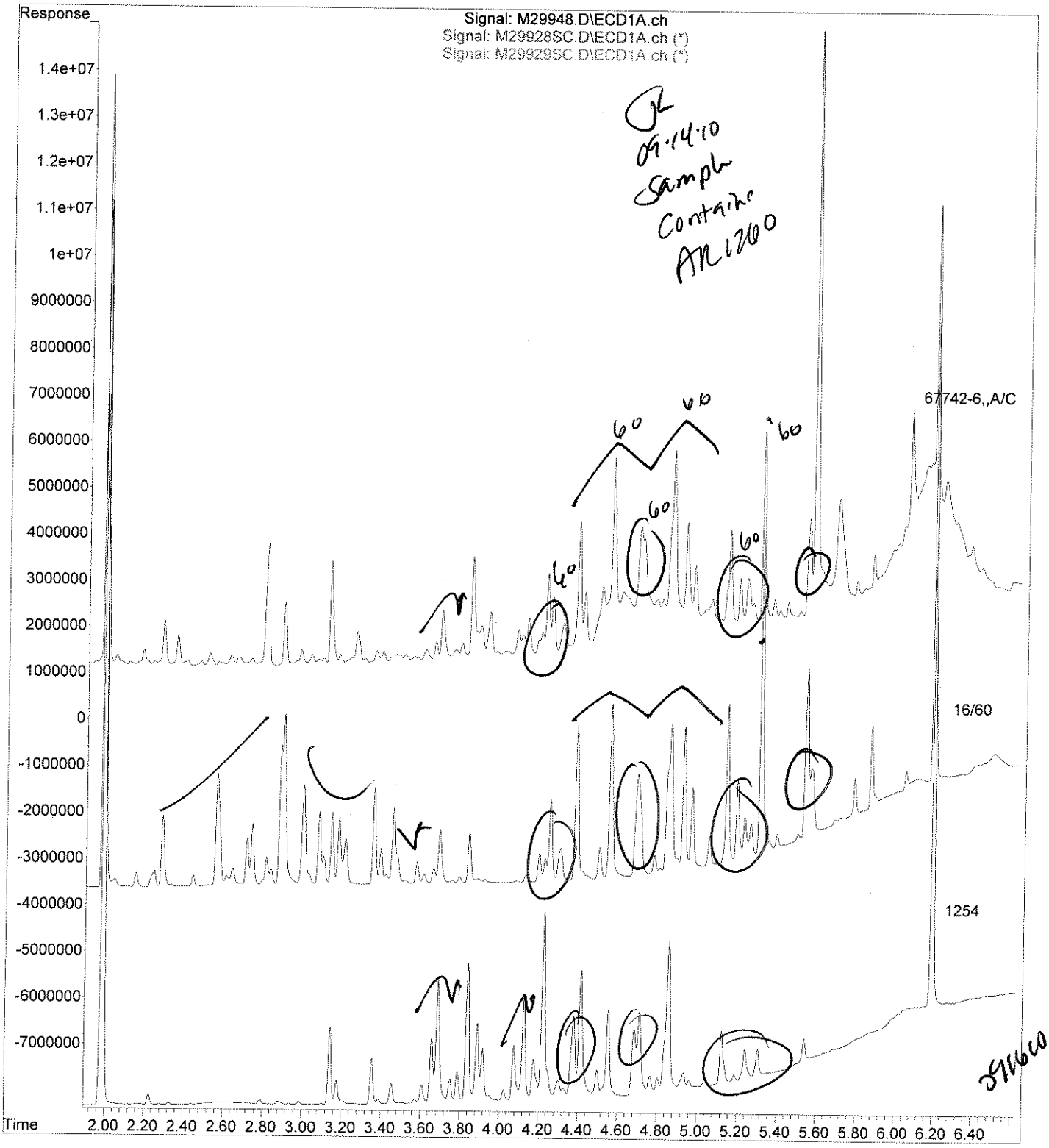
Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

File :C:\msdchem\1\DATA\091310-M\M29948.D
Operator : JK
Acquired : 13 Sep 2010 1:29 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67742-6,,A/C
Misc Info : SOIL
Vial Number: 14



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-021

SAMPLE DATA

Lab Sample ID: 67742-7
Matrix: Solid
Percent Solid: 96
Dilution Factor: 8
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	260	U
PCB-1221	260	U
PCB-1232	260	U
PCB-1242	260	U
PCB-1248	260	U
PCB-1254	260	**1820**
PCB-1260	260	U
PCB-1262	260	U
PCB-1268	260	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	74	%
Decachlorobiphenyl	37	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-7,,A/C
Data File: M29949.D
Dilution Factor: 7.7

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	1822	1562	15.4	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-022

SAMPLE DATA

Lab Sample ID: 67742-8
Matrix: Solid
Percent Solid: 96
Dilution Factor: 10
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	330	U
PCB-1221	330	U
PCB-1232	330	U
PCB-1242	330	U
PCB-1248	330	U
PCB-1254	330	U
PCB-1260	330	U
PCB-1262	330	U
PCB-1268	330	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	67	%
Decachlorobiphenyl	75	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

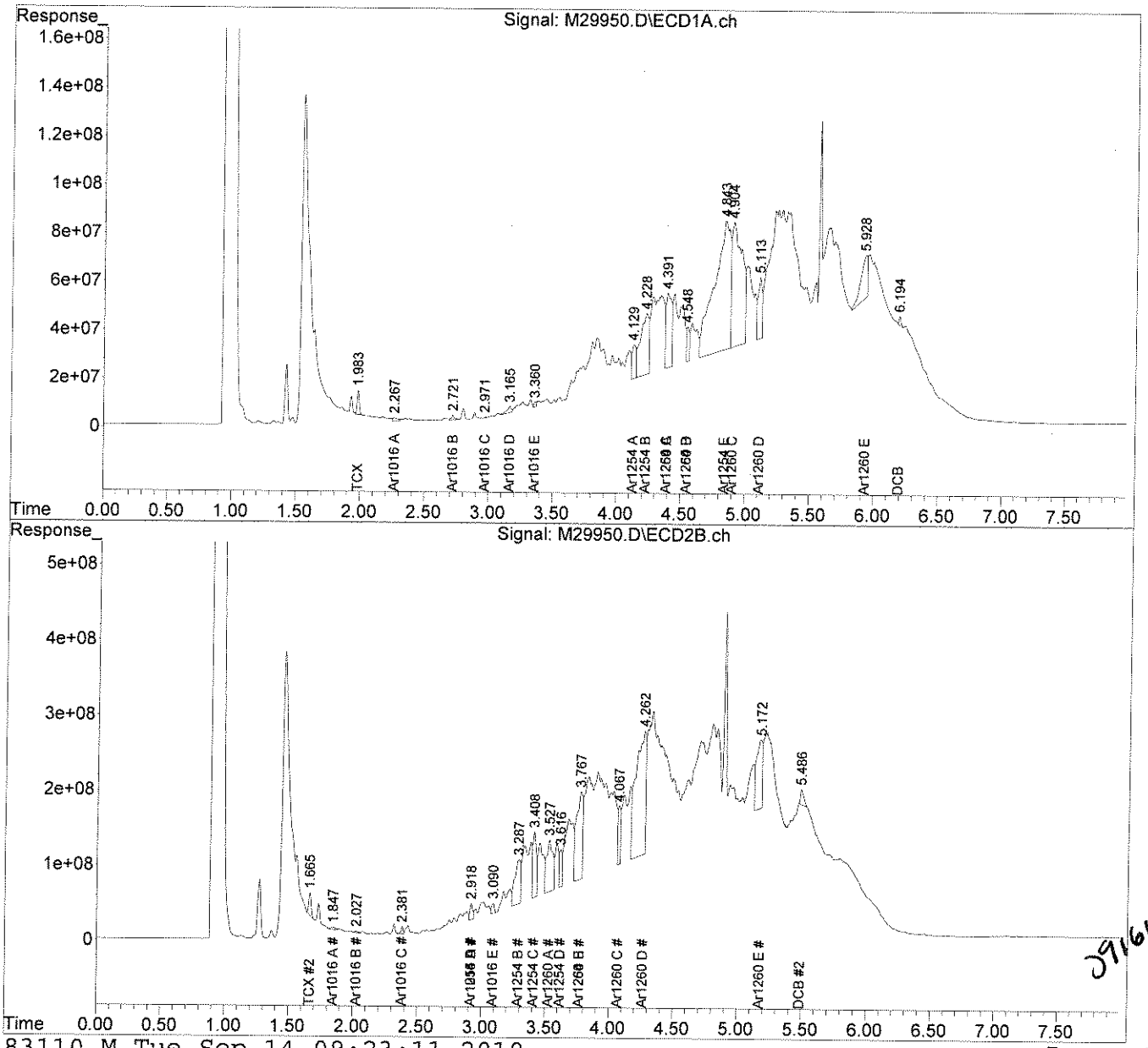
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29950.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 1:50 pm
Operator : JK
Sample : 67742-8,,A/C (~~Sig #1); 67742-8 (Sig #2~~)
Misc : SOIL
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:23:01 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-023

SAMPLE DATA

Lab Sample ID: 67742-9
Matrix: Solid
Percent Solid: 95
Dilution Factor: 4.1
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	140	U
PCB-1221	140	U
PCB-1232	140	U
PCB-1242	140	U
PCB-1248	140	U
PCB-1254	140	U
PCB-1260	140	U
PCB-1262	140	U
PCB-1268	140	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	95	%
Decachlorobiphenyl	*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis. Decachlorobiphenyl surrogate could not be measured due to sample matrix interferences. Secondary surrogate is in control.

PCB EXT Report

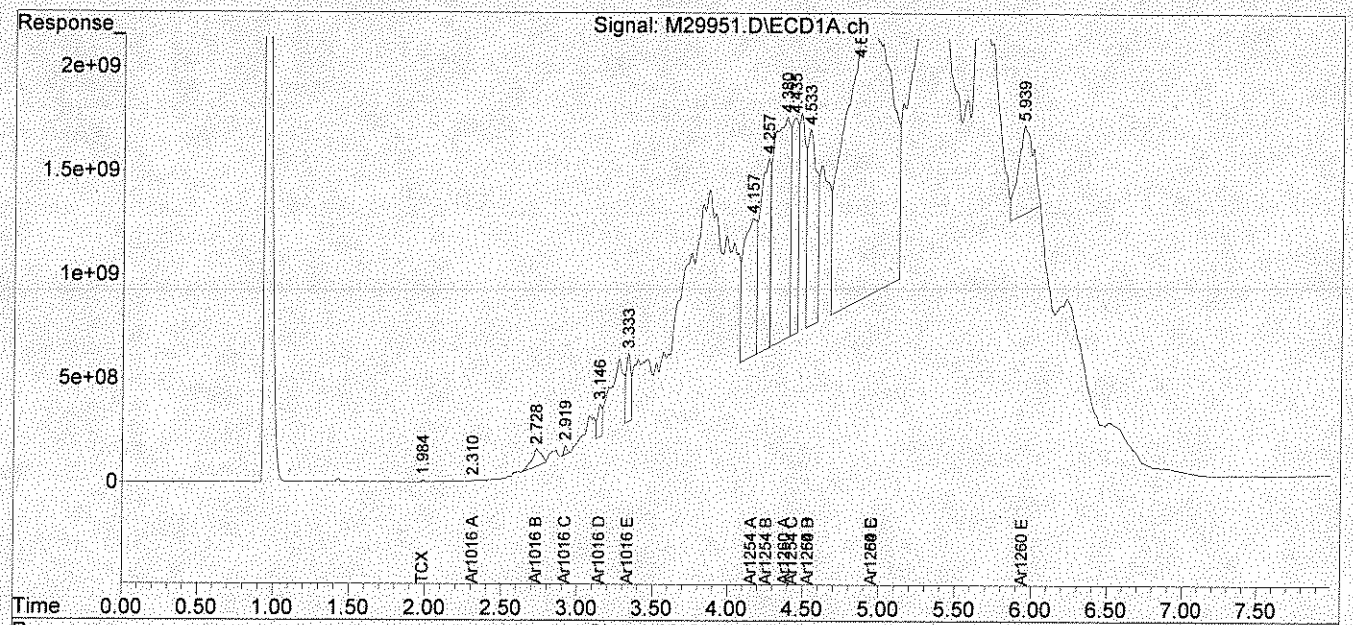
Authorized signature

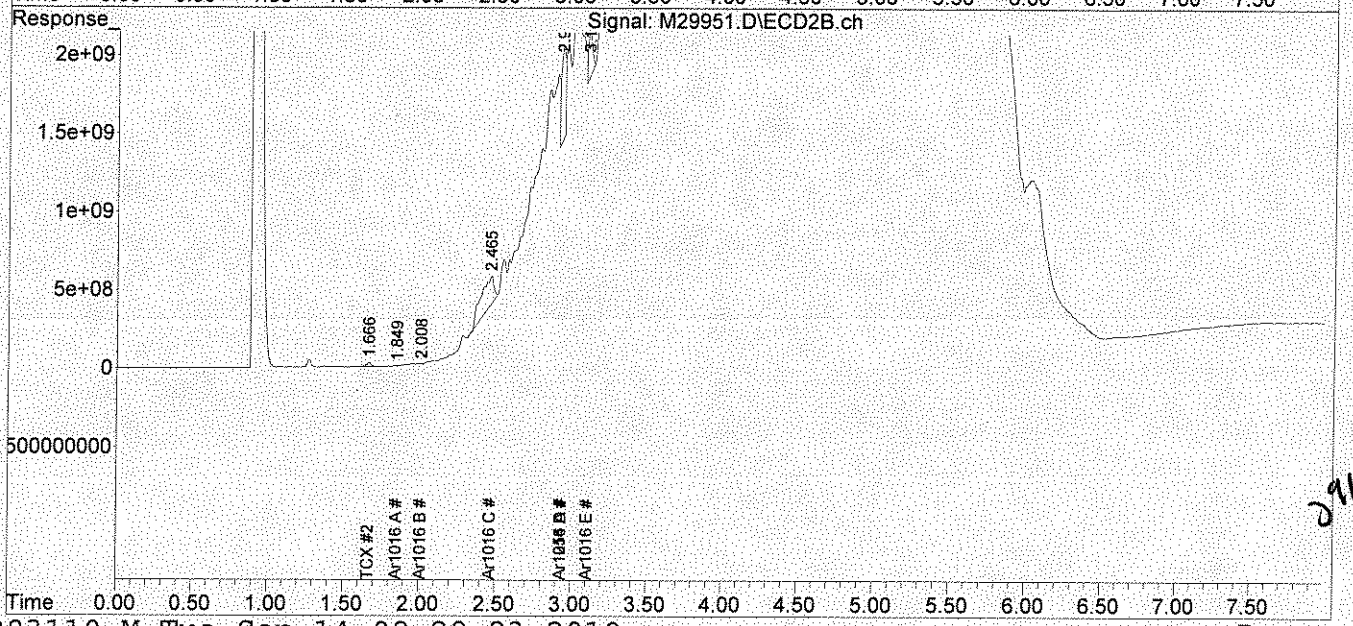
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29951.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 2:00 pm
Operator : JK
Sample : 67742-9,,A/C (~~Sig #1); 67742-9 (Sig #2~~)
Misc : SOIL
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 08:10:15 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JK 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-024D

SAMPLE DATA

Lab Sample ID: 67742-10
Matrix: Solid
Percent Solid: 90
Dilution Factor: 4.3
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	140	U
PCB-1221	140	U
PCB-1232	140	U
PCB-1242	140	U
PCB-1248	140	U
PCB-1254	140	U
PCB-1260	140	U
PCB-1262	140	U
PCB-1268	140	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	68	%
Decachlorobiphenyl	*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis. Decachlorobiphenyl surrogate could not be measured due to sample matrix interferences. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

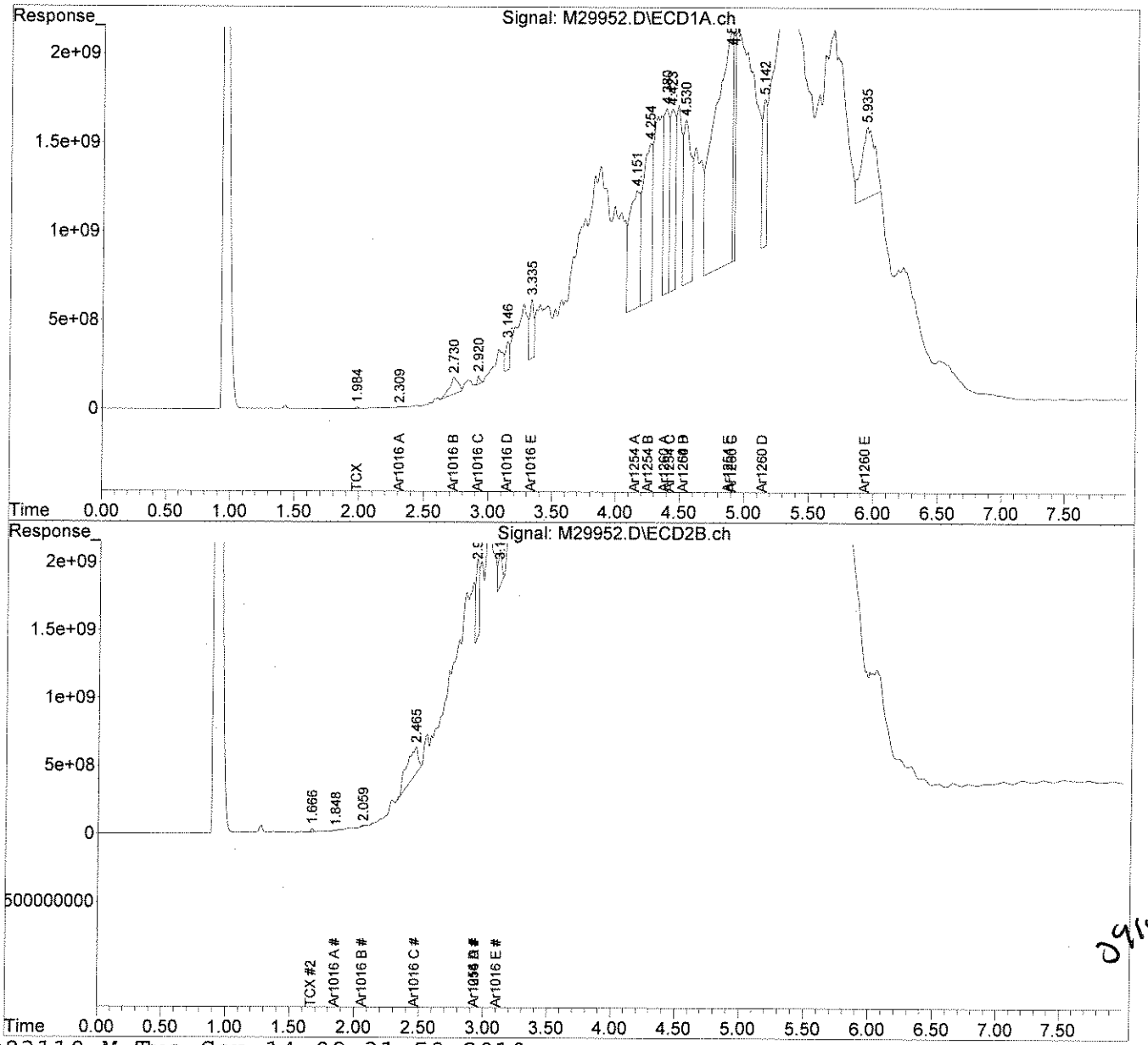
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29952.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 2:10 pm
Operator : JK
Sample : 67742-10,,A/C (~~Sig #1~~); ~~67742-10 (Sig #2)~~
Misc : SOIL
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:31:55 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JR 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



9/16/10

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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-025

SAMPLE DATA

Lab Sample ID: 67742-11
Matrix: Solid
Percent Solid: 99
Dilution Factor: 55
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/14/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	1820	U
PCB-1221	1820	U
PCB-1232	1820	U
PCB-1242	1820	U
PCB-1248	1820	U
PCB-1254	1820	**31900**
PCB-1260	1820	U
PCB-1262	1820	U
PCB-1268	1820	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	99	%
Decachlorobiphenyl	434*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis. *Surrogate recovery is affected by sample matrix interference. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-11,1:10,,A/C
Data File: M30090.D
Dilution Factor: 55.0

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	31883	23693	29.5	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

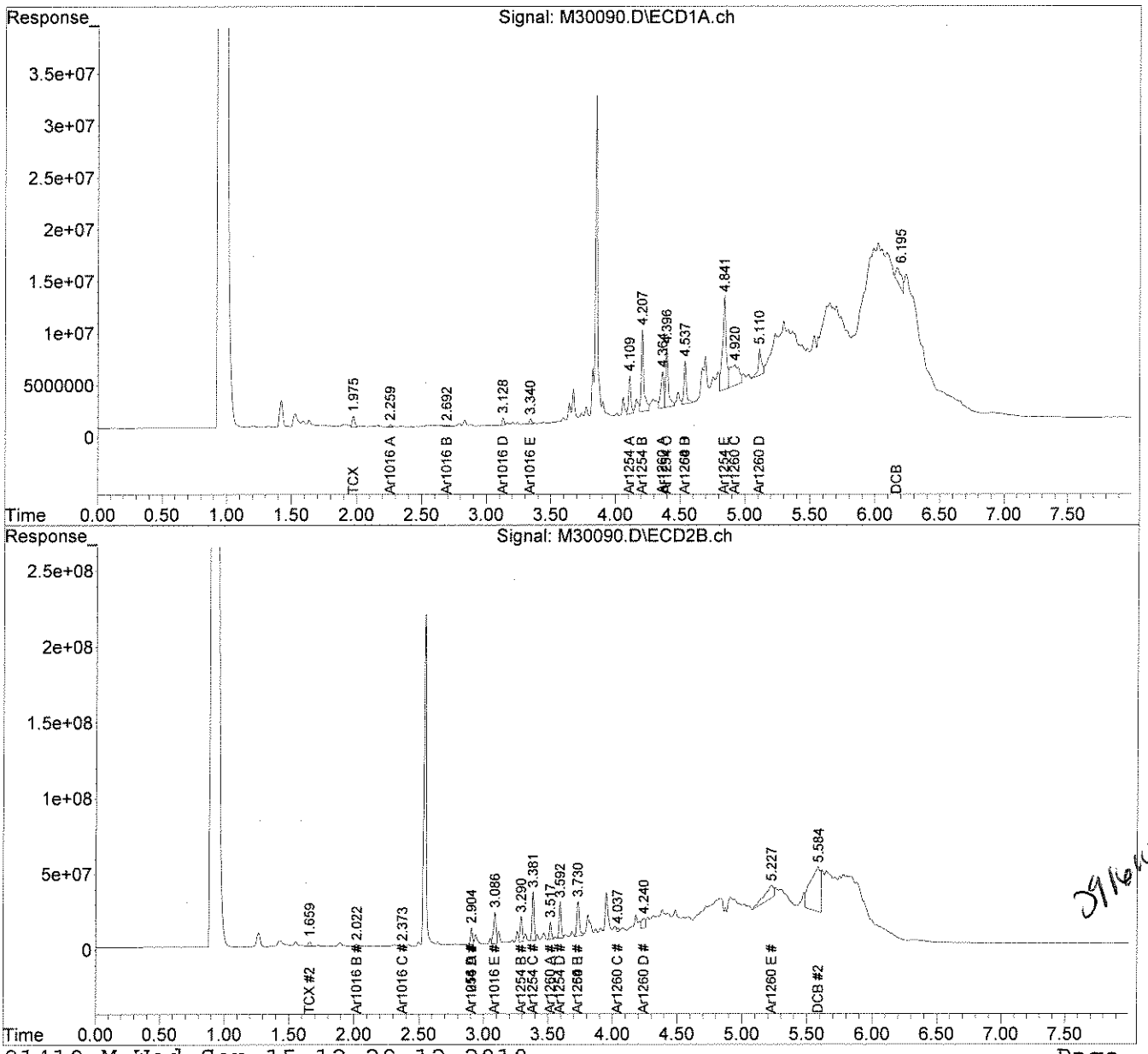
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091410-M\
Data File : M30090.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 14 Sep 2010 10:23 pm
Operator : JK
Sample : 67742-11,1:10,,A/C
Misc : SOIL
ALS Vial : 57 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 15 12:29:03 2010
Quant Method : C:\msdchem\1\METHODS\PCB091410.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Tue Sep 14 15:46:07 2010
Response via : Initial Calibration
Integrator: ChemStation

CL 09-15-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



29/6.0

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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-026

SAMPLE DATA

Lab Sample ID: 67742-12
Matrix: Solid
Percent Solid: 96
Dilution Factor: 6
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	200	U
PCB-1221	200	U
PCB-1232	200	U
PCB-1242	200	U
PCB-1248	200	U
PCB-1254	200	U
PCB-1260	200	U
PCB-1262	200	U
PCB-1268	200	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	53	%
Decachlorobiphenyl	*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis. Decachlorobiphenyl surrogate could not be measured due to sample matrix interferences. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

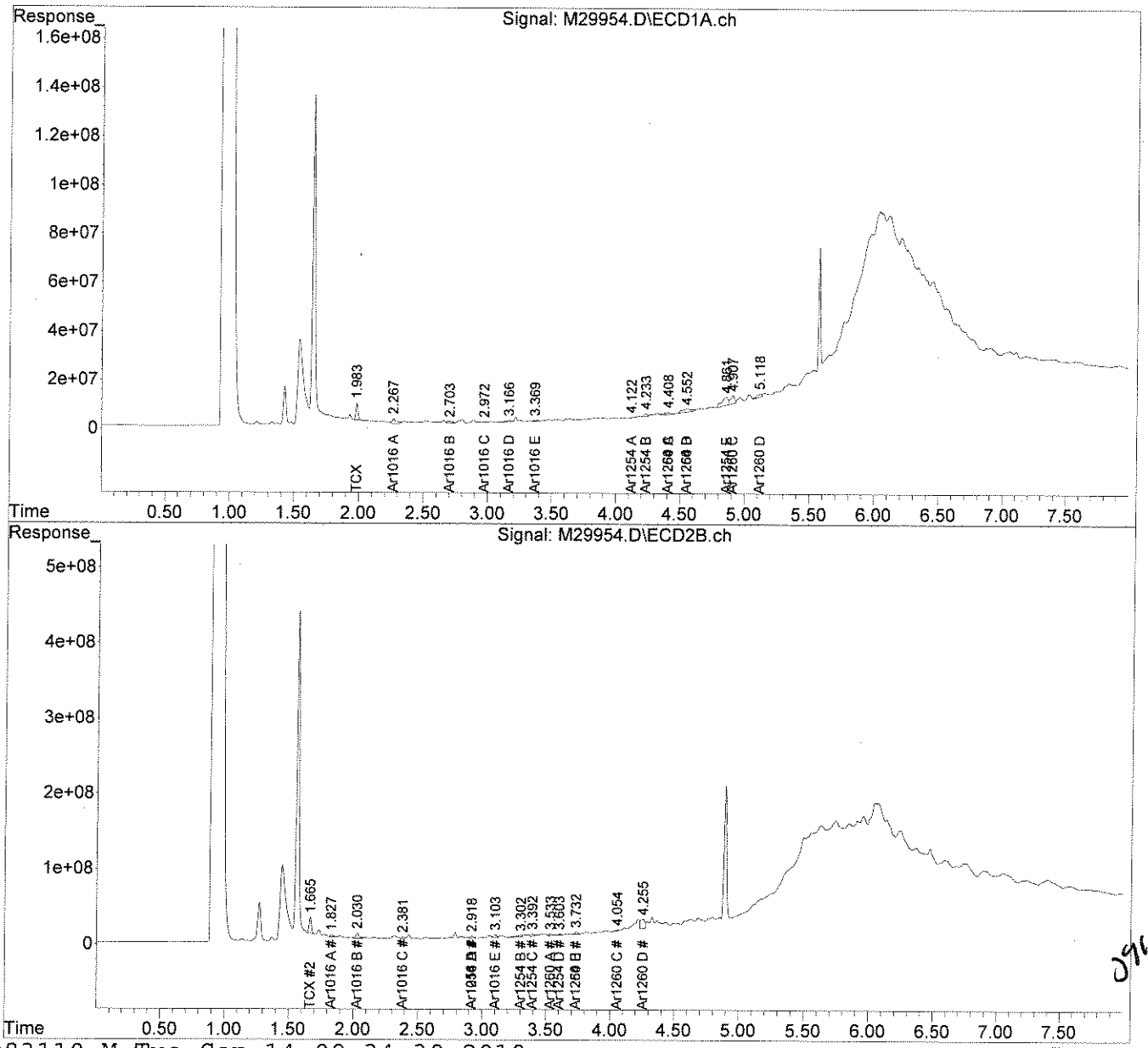
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29954.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 2:31 pm
Operator : JK
Sample : 67742-12,,A/C ~~(Sig #1), 67742-12 (Sig~~ #2)
Misc : SOIL
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:34:24 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-027

SAMPLE DATA

Lab Sample ID: 67742-13
Matrix: Solid
Percent Solid: 99
Dilution Factor: 9
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	300	U
PCB-1221	300	U
PCB-1232	300	U
PCB-1242	300	U
PCB-1248	300	U
PCB-1254	300	**2500**
PCB-1260	300	U
PCB-1262	300	U
PCB-1268	300	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	57	%
Decachlorobiphenyl	65	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

COMMENTS: Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C. Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

PCB
COLUMN RELATIVE PERCENT DIFFERENCE

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742
Sample: 67742-13,,A/C
Data File: M29955.D
Dilution Factor: 9.0

	Column #1	Column #2		
COMPOUND	SAMPLE RESULT (ug/kg)	SAMPLE RESULT (ug/kg)	RPD	#
PCB 1254	2496	2069	18.7	

Column to be used to flag RPD values greater than QC limit of 40%

* Values outside QC limits

Comments: _____

PCB FORM 10

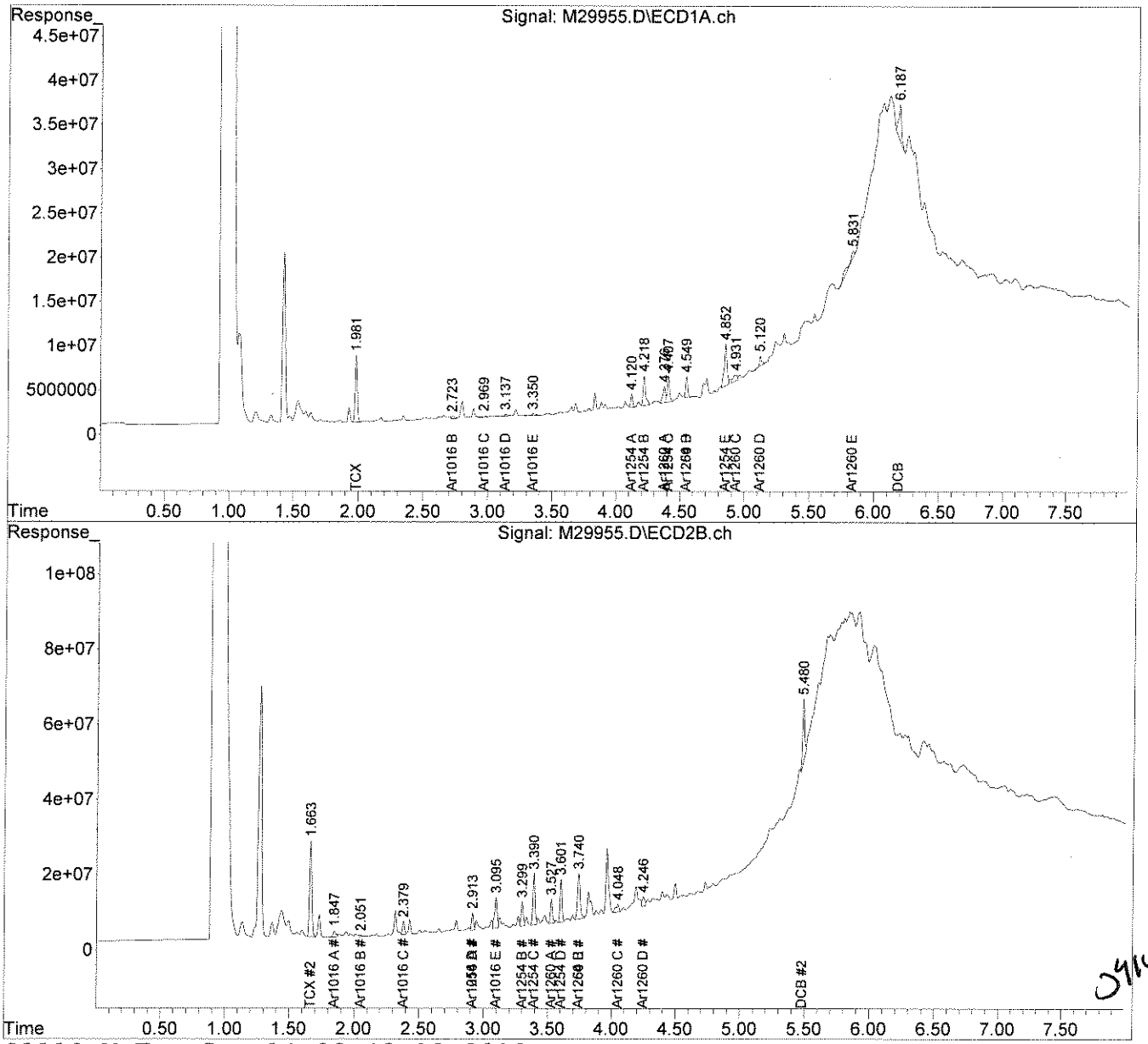
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29955.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 2:41 pm
Operator : JK
Sample : 67742-13,,A/C (Sig #1); 67742-13 (Sig #2)
Misc : SOIL
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:42:04 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

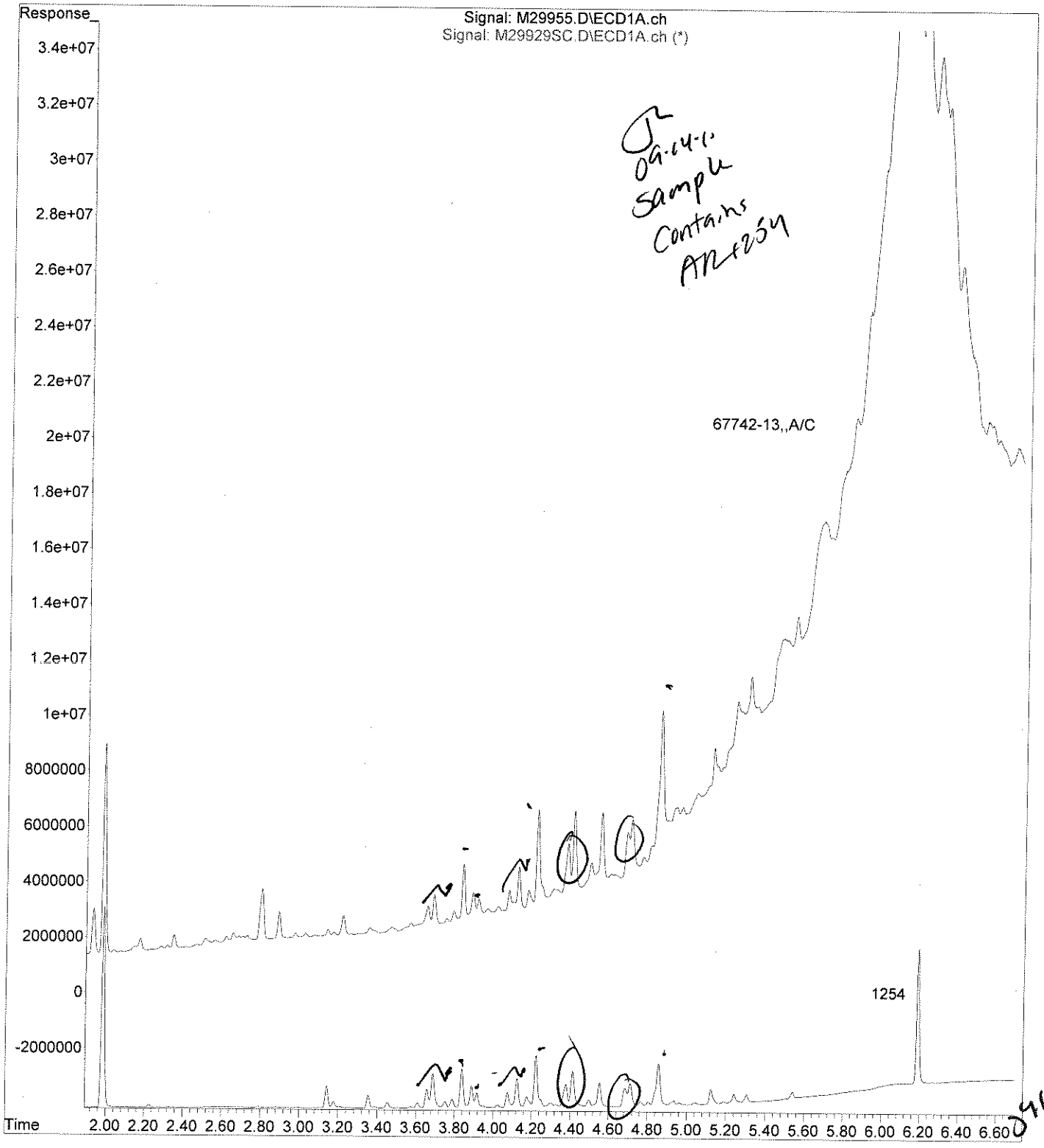
JL 09/14/10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



09/16/10

File :C:\msdchem\1\DATA\091310-M\M29955.D
Operator : JK
Acquired : 13 Sep 2010 2:41 pm using AcqMethod PEST.M
Instrument : Instrument M
Sample Name: 67742-13,,A/C
Misc Info : SOIL
Vial Number: 21



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September 16, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-028

SAMPLE DATA

Lab Sample ID: 67742-14
Matrix: Solid
Percent Solid: 91
Dilution Factor: 4.5
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	150	U
PCB-1221	150	U
PCB-1232	150	U
PCB-1242	150	U
PCB-1248	150	U
PCB-1254	150	U
PCB-1260	150	U
PCB-1262	150	U
PCB-1268	150	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	67	%
Decachlorobiphenyl	*	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis. Decachlorobiphenyl surrogate could not be measured due to sample matrix interferences. Secondary surrogate is in control.

PCB EXT Report

Authorized signature

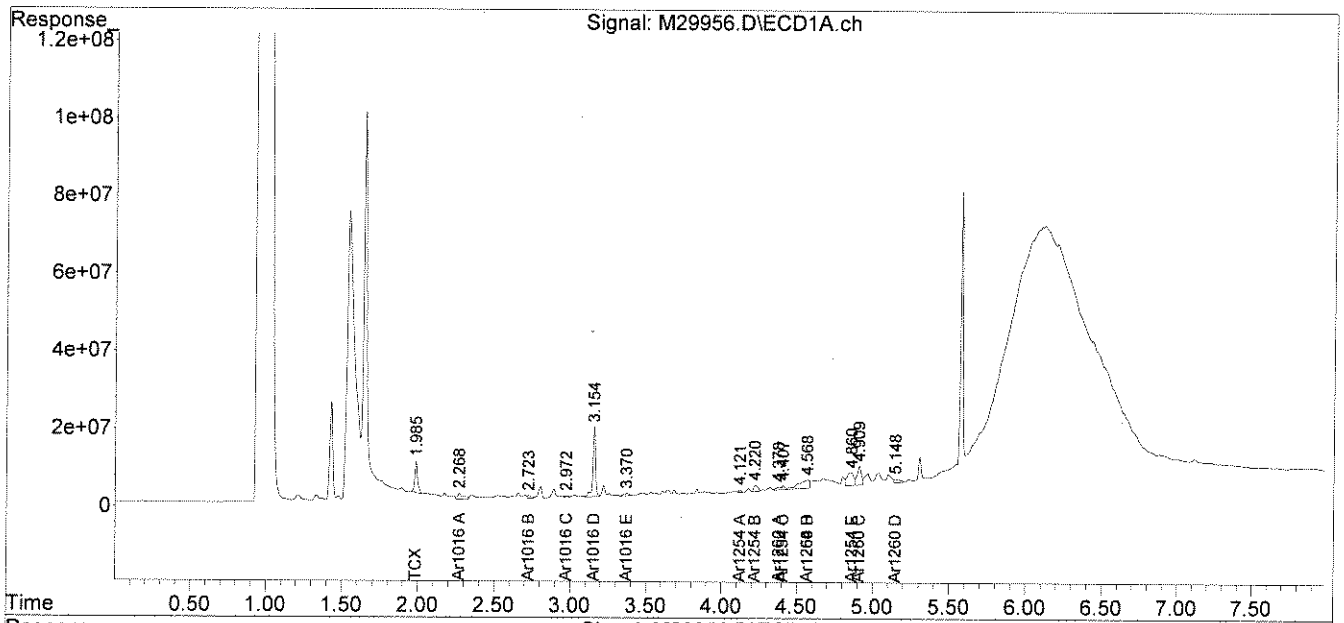
Quantitation Report (QT Reviewed)

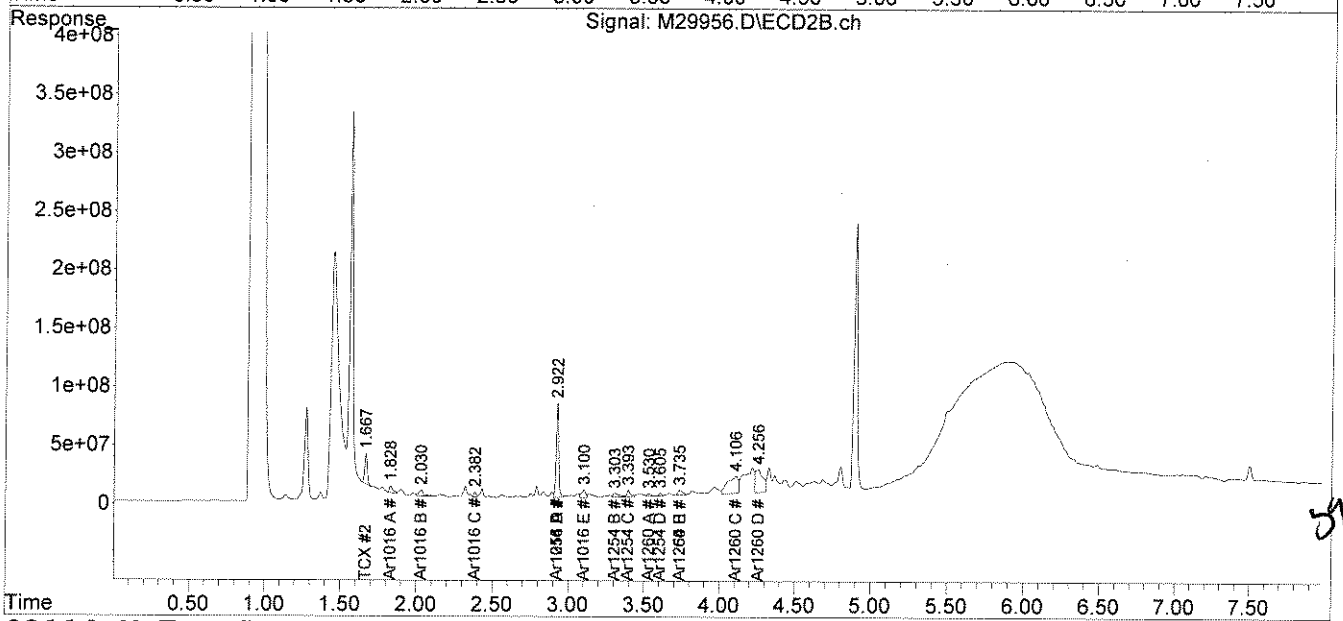
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29956.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 2:51 pm
Operator : JK
Sample : 67742-14,,A/C (Sig #1); 67742-14 (Sig #2)
Misc : SOIL
ALS Vial : 22 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:43:41 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um

JK 09-14-10





9/16/10

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-029

SAMPLE DATA

Lab Sample ID: 67742-15
Matrix: Solid
Percent Solid: 98
Dilution Factor: 1.0
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	66	%
Decachlorobiphenyl	50	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

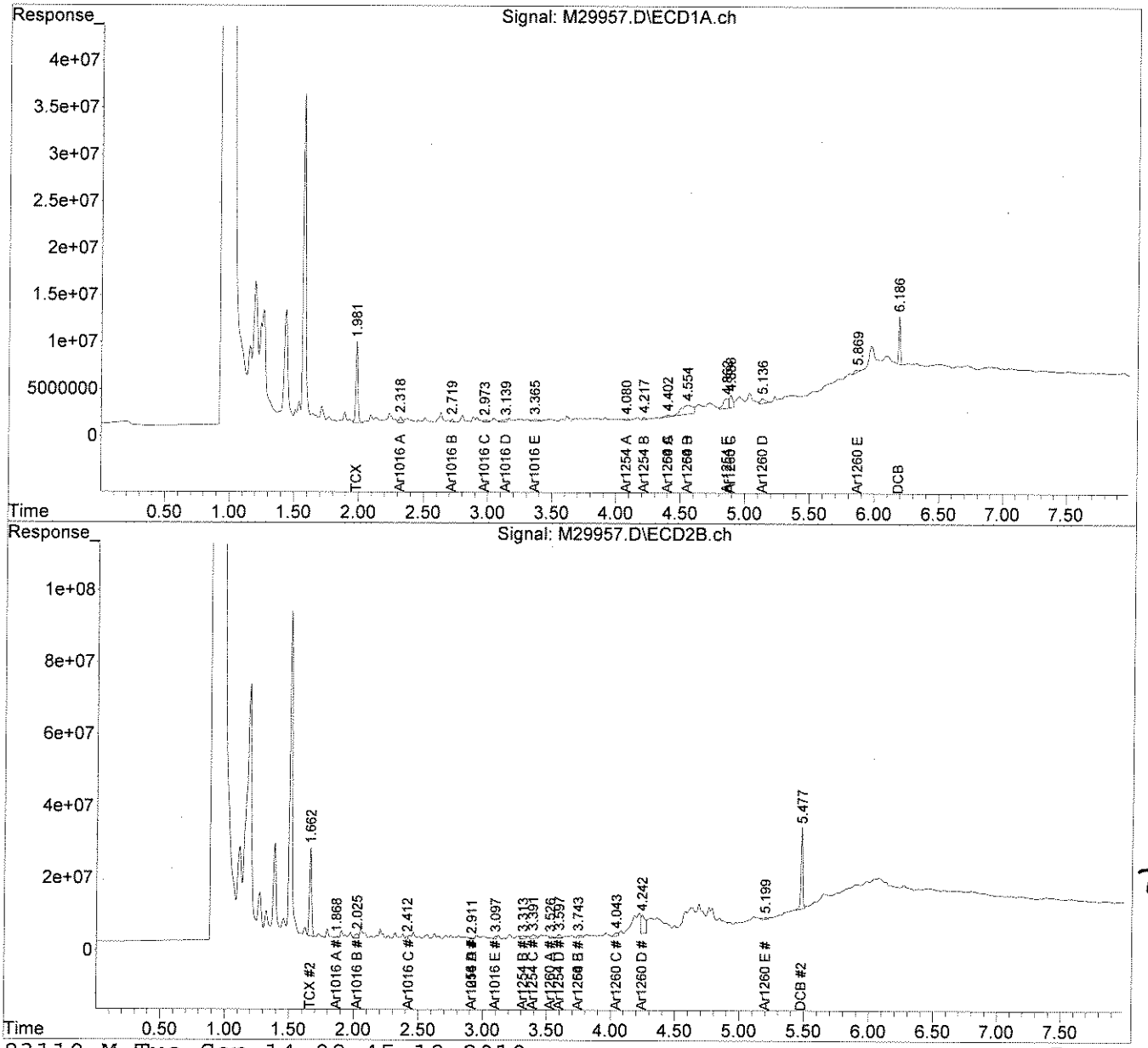
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29957.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 3:01 pm
Operator : JK
Sample : 67742-15,,A/C (~~Sig #1); 67742-15 (Sig~~ #2)
Misc : SOIL
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:45:12 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JR 09.14.10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



JR 9/16/10

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-030

SAMPLE DATA

Lab Sample ID: 67742-16
Matrix: Solid
Percent Solid: 99
Dilution Factor: 1.0
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/kg	Results µg/kg
PCB-1016	33	U
PCB-1221	33	U
PCB-1232	33	U
PCB-1242	33	U
PCB-1248	33	U
PCB-1254	33	U
PCB-1260	33	U
PCB-1262	33	U
PCB-1268	33	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	92	%
Decachlorobiphenyl	62	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS: Results are expressed on a dry weight basis.

PCB EXT Report

Authorized signature

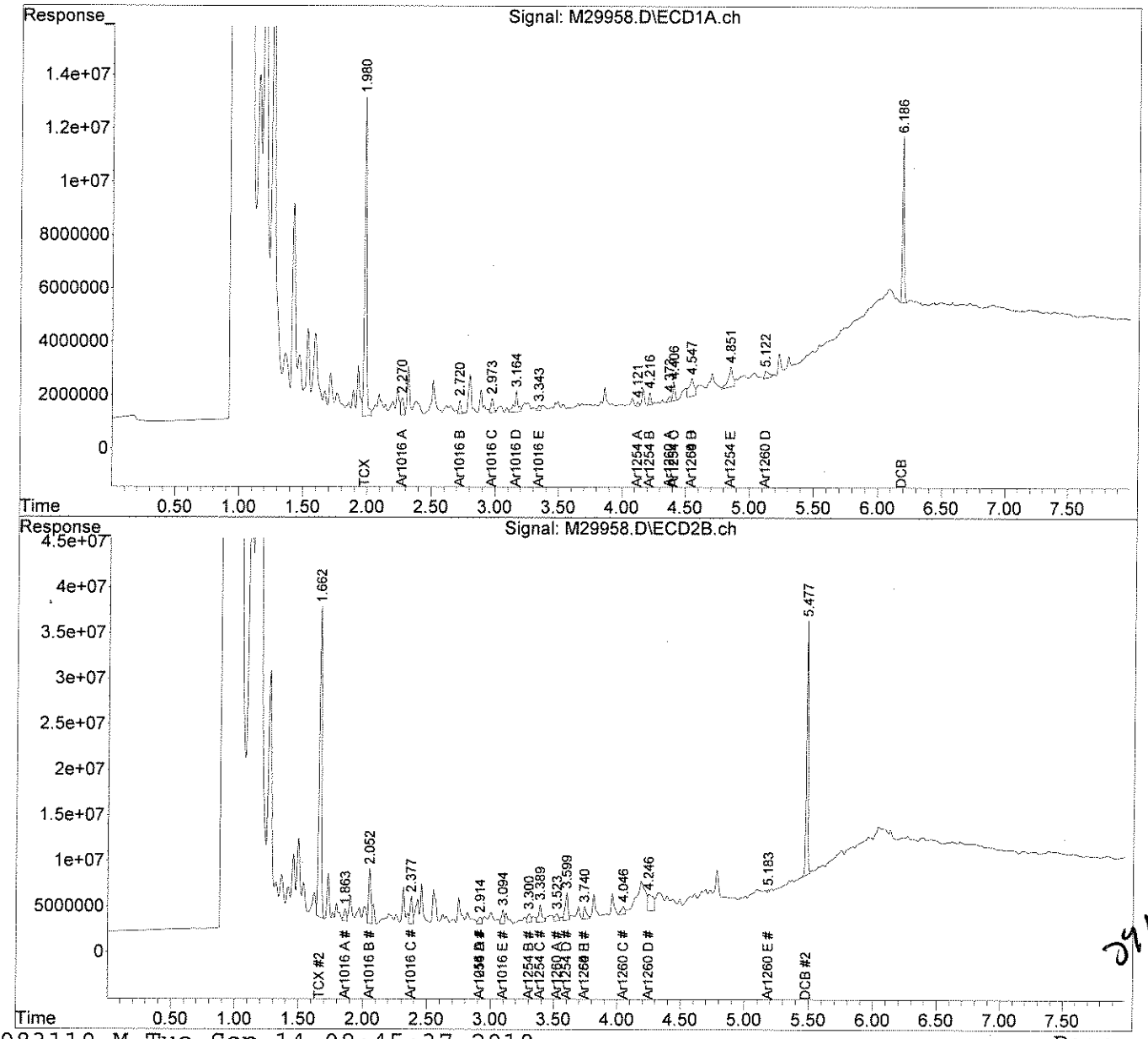
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29958.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 3:12 pm
Operator : JK
Sample : 67742-16,,A/C (~~Sig #1); 67742-16 (Sig #2)~~
Misc : SOIL
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:45:30 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



DJ 10/6/10

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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-031

SAMPLE DATA

Lab Sample ID: 67742-17
Matrix: Wipe
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/wipe	Results µg/wipe
PCB-1016	0.5	U
PCB-1221	0.5	U
PCB-1232	0.5	U
PCB-1242	0.5	U
PCB-1248	0.5	U
PCB-1254	0.5	U
PCB-1260	0.5	U
PCB-1262	0.5	U
PCB-1268	0.5	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	94	%
Decachlorobiphenyl	54	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS:

PCB EXT Report

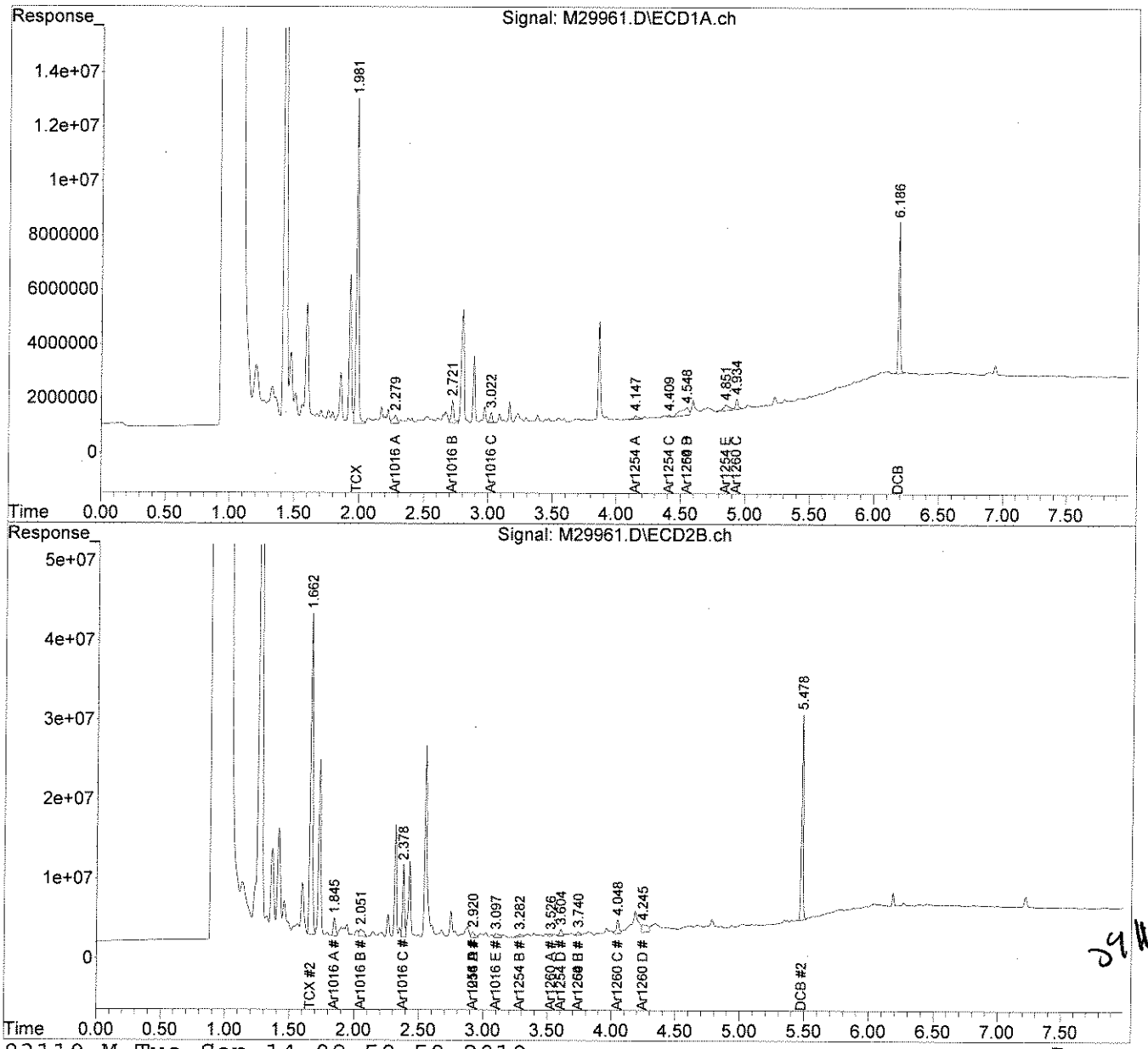
Authorized signature

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29961.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 3:42 pm
Operator : JK
Sample : 67742-17,,A/C
Misc : SOIL
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:50:41 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um



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September 14, 2010

CLIENT SAMPLE ID

Project Name: Harvard Quad

Project Number: 223586

Field Sample ID: HMS-QD-032

SAMPLE DATA

Lab Sample ID: 67742-18
Matrix: Wipe
Percent Solid: N/A
Dilution Factor: 1.0
Collection Date: 09/09/10
Lab Receipt Date: 09/10/10
Extraction Date: 09/10/10
Analysis Date: 09/13/10

PCB ANALYTICAL RESULTS

COMPOUND	Quantitation Limit µg/wipe	Results µg/wipe
PCB-1016	0.5	U
PCB-1221	0.5	U
PCB-1232	0.5	U
PCB-1242	0.5	U
PCB-1248	0.5	U
PCB-1254	0.5	U
PCB-1260	0.5	U
PCB-1262	0.5	U
PCB-1268	0.5	U

Surrogate Standard Recovery

2,4,5,6-Tetrachloro-m-xylene	105	%
Decachlorobiphenyl	61	%

U=Undetected J=Estimated E=Exceeds Calibration Range B=Detected in

METHODOLOGY: Sample analysis conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 8082.

Sample preparation conducted according to Test Methods for Evaluating Solid Waste, SW-846 Method 3540C.

COMMENTS:

PCB EXT Report

Authorized signature

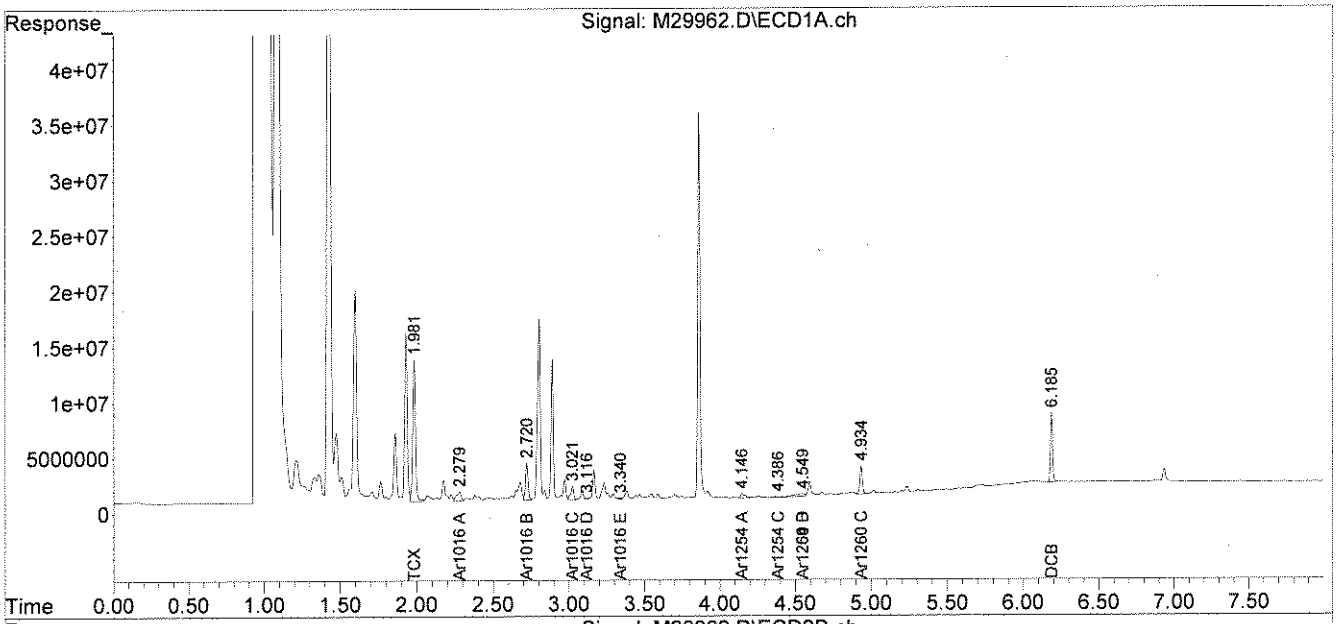
Quantitation Report (QT Reviewed)

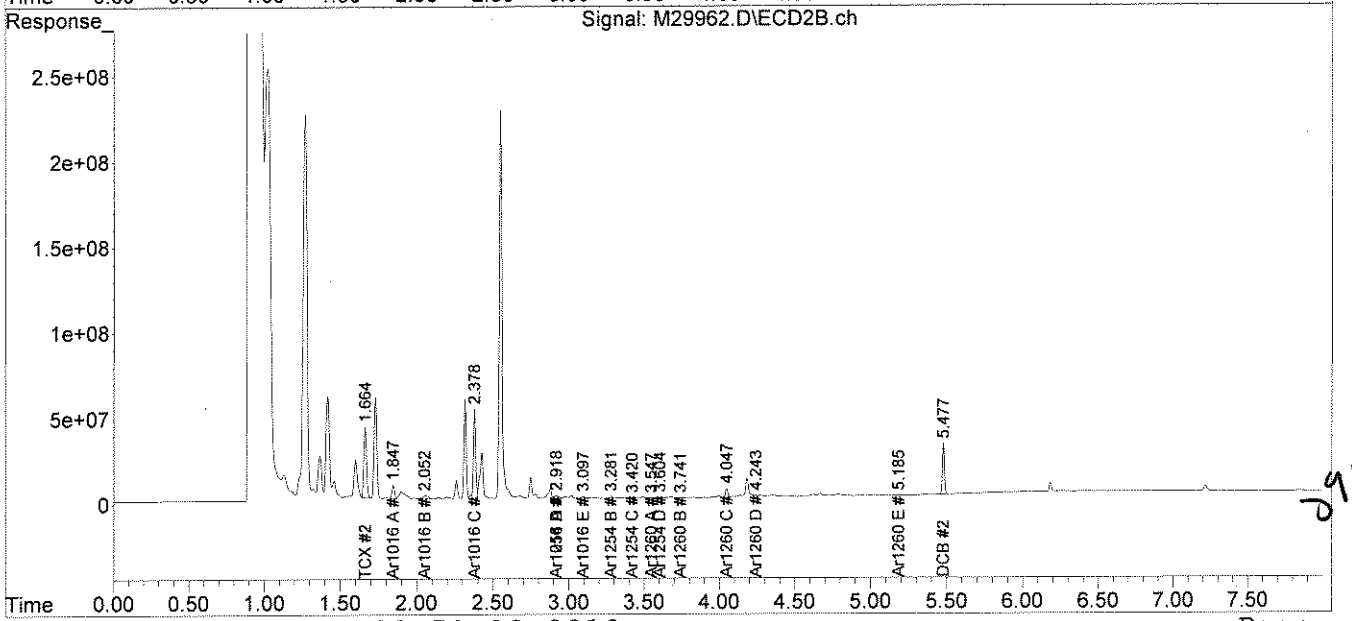
Data Path : C:\msdchem\1\DATA\091310-M\
Data File : M29962.D
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 13 Sep 2010 3:53 pm
Operator : JK
Sample : 67742-18,,A/C
Misc : SOIL
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Sep 14 09:51:05 2010
Quant Method : C:\msdchem\1\METHODS\PCB083110.M
Quant Title : SW-846 METHOD 8082 Aroclor 1016/1260/1254
QLast Update : Wed Sep 01 08:14:15 2010
Response via : Initial Calibration
Integrator: ChemStation

JL 09-14-10

Volume Inj. : 2 uL
Signal #1 Phase : STX-CLPPesticides Signal #2 Phase: STX-CLPPesticides
Signal #1 Info : 30 m x 0.25mm x 0 Signal #2 Info : 30 m x 0.25mm x 0.25 um





9/16/10

PCB
QC FORMS

PCB SOIL
SYSTEM MONITORING COMPOUNDS
SUMMARY

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742

	Column #1				Column #2			
SAMPLE ID	SMC 1 (%)	#	SMC 2 (%)	#	SMC 1 (%)	#	SMC 2 (%)	#
B091010PSOX2,,A/C	110		65		104		56	
L091010PSOX2,,A/C	103		62		99		54	
LD091010PSOX2,,A/C	106		62		101		53	
67742-1,,A/C	110		58		101		51	
67742-2,,A/C	91		75		63		41	
67742-3,,A/C	69		36		62		43	
67742-4,,A/C	114		40		94		42	
67742-5,,A/C	107		50		89		45	
67742-6,,A/C	98		58		90		47	
67742-7,,A/C	74		37		64		32	
67742-8,,A/C	74		41		67		75	
67742-9,,A/C	73		0	*	95		0	*
67742-10,,A/C	68		0	*	60		0	*
67742-12,,A/C	53		0	*	46		0	*
67742-13,,A/C	57		65		56		35	
67742-14,,A/C	67		0	*	54		0	*
67742-15,,A/C	66		50		50		45	
67742-16,,A/C	92		62		75		53	
67742-16,MS,,A/C	101		66		92		55	
67742-16,MSD,,A/C	111		72		101		63	
67742-17,,A/C	94		54		88		50	
67742-18,,A/C	105		61		91		57	

		Lower Limit	Upper Limit
SMC #1 =	TCX	30	150
SMC #2 =	DCB	30	150

\# Column to be used to flag recovery values outside of QC limits
* Values outside QC limits
D System Monitoring Compound diluted out

PCB SOIL
SYSTEM MONITORING COMPOUNDS
SUMMARY

Instrument ID: M
GC Column #1: STX-CLPesticides I
Column ID: 0.25 mm
GC Column #2: STX-CLPesticides II
Column ID: 0.25 mm

SDG: 67742

	Column #1				Column #2			
SAMPLE ID	SMC 1 (%)	#	SMC 2 (%)	#	SMC 1 (%)	#	SMC 2 (%)	#
B091010PSOX,,A/C	84		55		84		54	
67742-11,1:10,,A/C	99		434	*	70		2806	*

		Lower Limit	Upper Limit
SMC #1 =	TCX	40	130
SMC #2 =	DCB	40	130

\# Column to be used to flag recovery values outside of QC limits
* Values outside QC limits
D System Monitoring Compound diluted out

PCB SOIL
LABORATORY CONTROL SAMPLE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG: 67742

Non-spiked sample: B091010PSOX2,,A/C

Spike: L091010PSOX2,,A/C

Spike duplicate: LD091010PSOX2,,A/C

COMPOUND	LCS SPIKE ADDED (ug/kg)	LCSD SPIKE ADDED (ug/kg)	LOWER LIMIT	UPPER LIMIT	RPD LIMIT	NON-SPIKE RESULT (ug/kg)	SPIKE RESULT (ug/kg)	SPIKE % REC	#	SPIKE DUP RESULT (ug/kg)	SPIKE DUP % REC	#	RPD	#
PCB 1016	200	200	65	140	30	0	226	113		239	120		5.5	
PCB 1260	200	200	60	130	30	0	202	101		210	105		4.0	
PCB 1016 #2	200	200	65	140	30	0	259	130		269	135		3.8	
PCB 1260 #2	200	200	60	130	30	0	218	109		209	105		3.9	

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

Comments: _____

_____

PCB SOIL
MATRIX SPIKE/DUPLICATE
PERCENT RECOVERY

Instrument ID: M

GC Column #1: STX-CLPesticides I

Column ID: 0.25 mm

GC Column #2: STX-CLPesticides II

Column ID: 0.25 mm

SDG: 67742

Non-spiked sample: 67742-16,,A/C

Spike: 67742-16,MS,,A/C

Spike duplicate: 67742-16,MSD,,A/C

COMPOUND	LCS SPIKE ADDED (ug/kg)	LCSD SPIKE ADDED (ug/kg)	LOWER LIMIT	UPPER LIMIT	RPD LIMIT	NON-SPIKE RESULT (ug/kg)	SPIKE RESULT (ug/kg)	SPIKE % REC	#	SPIKE DUP RESULT (ug/kg)	SPIKE DUP % REC	#	RPD	#
PCB 1016	375	402	65	140	30	0	439	117		493	123		4.6	
PCB 1260	375	402	60	130	30	0	371	99		445	111		11.2	
PCB 1016 #2	375	402	65	140	30	0	409	109		458	114		4.4	
PCB 1260 #2	375	402	60	130	30	0	386	103		467	116		11.9	

Column to be used to flag recovery and RPD values outside of QC limits

* Values outside QC limits

LCS/LCSD spike added values have been weight adjusted.

Non-spike result of "0" used in place of "U" to allow calculation of spike recovery.

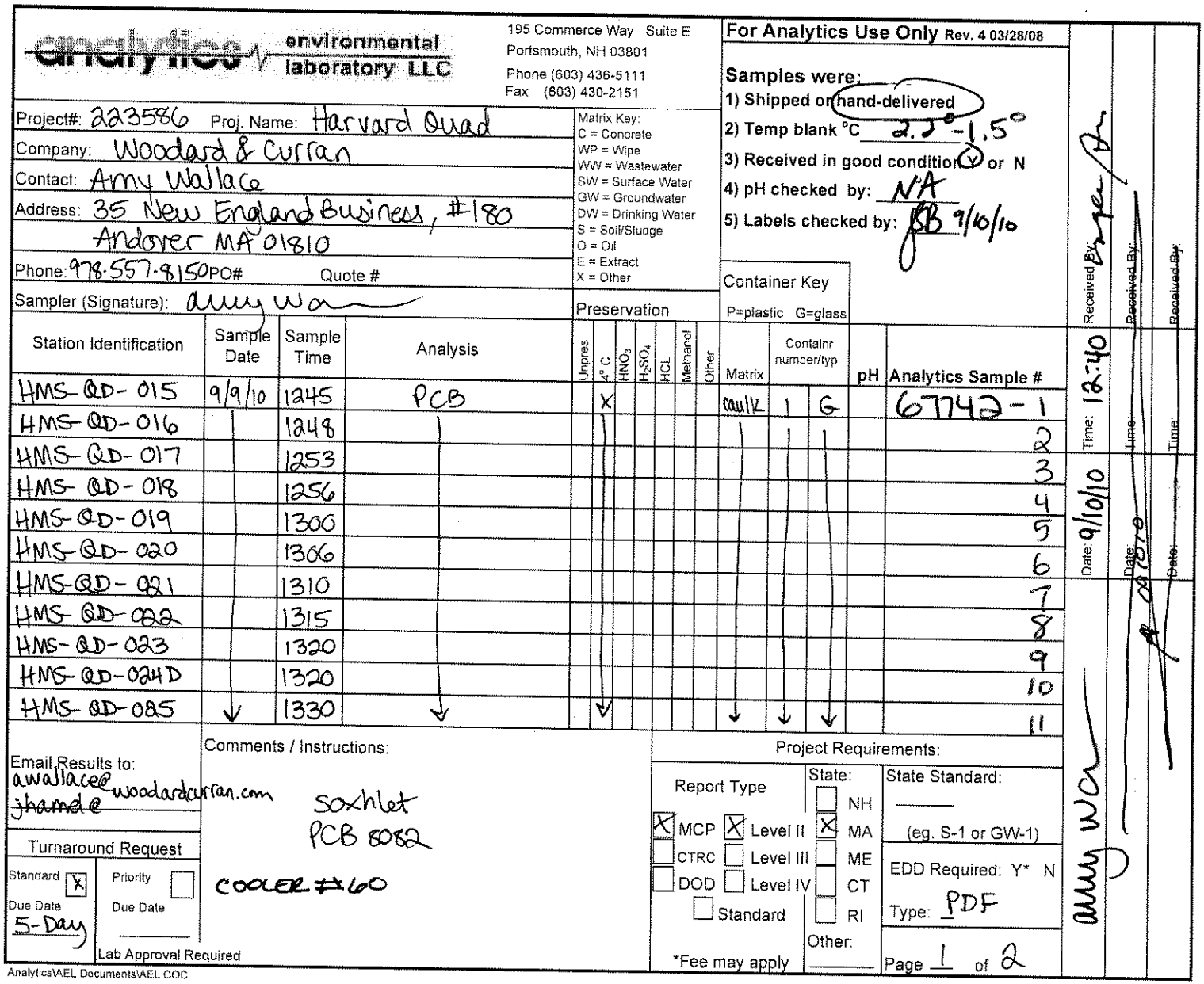
Comments: _____

_____

PCB FORM 3

CHAIN OF CUSTODIES

Chain Of Custody Form



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For Analytics Use Only Rev. 4 03/28/08

Samples were:
1) Shipped or hand-delivered
2) Temp blank °C 2.2 -1.5°
3) Received in good condition (Y) or N
4) pH checked by: N/A
5) Labels checked by: JB 9/10/10

Project#: 223586 Proj. Name: Harvard Quad
Company: Woodard & Curran
Contact: Amy Wallace
Address: 35 New England Business, #180
Andover MA 01810
Phone: 978-557-8150 PO# Quote #
Sampler (Signature): Amy Wa

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract
X = Other

Container Key
P=plastic G=glass

Preservation

Station Identification	Sample Date	Sample Time	Analysis	Unpres	4° C	HNO_3	H_2SO_4	HCL	Methanol	Other	Matrix	Containr number/typ		pH	Analytics Sample #
HMS-QD-015	9/9/10	1245	PCB		X						caulk	1	G		67742-1
HMS-QD-016		1248													2
HMS-QD-017		1253													3
HMS-QD-018		1256													4
HMS-QD-019		1300													5
HMS-QD-020		1306													6
HMS-QD-021		1310													7
HMS-QD-022		1315													8
HMS-QD-023		1320													9
HMS-QD-024D		1320													10
HMS-QD-025	↓	1330	↓		↓						↓	↓	↓		11

Received By: Amy Wa Time: 18:40 Date: 9/10/10
Received By: Time: Date:
Received By: Time: Date:

Email Results to:
awallace@woodardcurran.com
jhandel@

Comments / Instructions:
Soxhlet
PCB 8082
COOLER #60

Turnaround Request
Standard [X] Due Date 5-Day
Priority [ ] Due Date
Lab Approval Required

Project Requirements:

Report Type
[X] MCP [X] Level II
[ ] CTRC [ ] Level III
[ ] DOD [ ] Level IV
[ ] Standard
*Fee may apply

State:
[ ] NH
[X] MA
[ ] ME
[ ] CT
[ ] RI
Other:

State Standard:
(eg. S-1 or GW-1)

EDD Required: Y* N
Type: PDF

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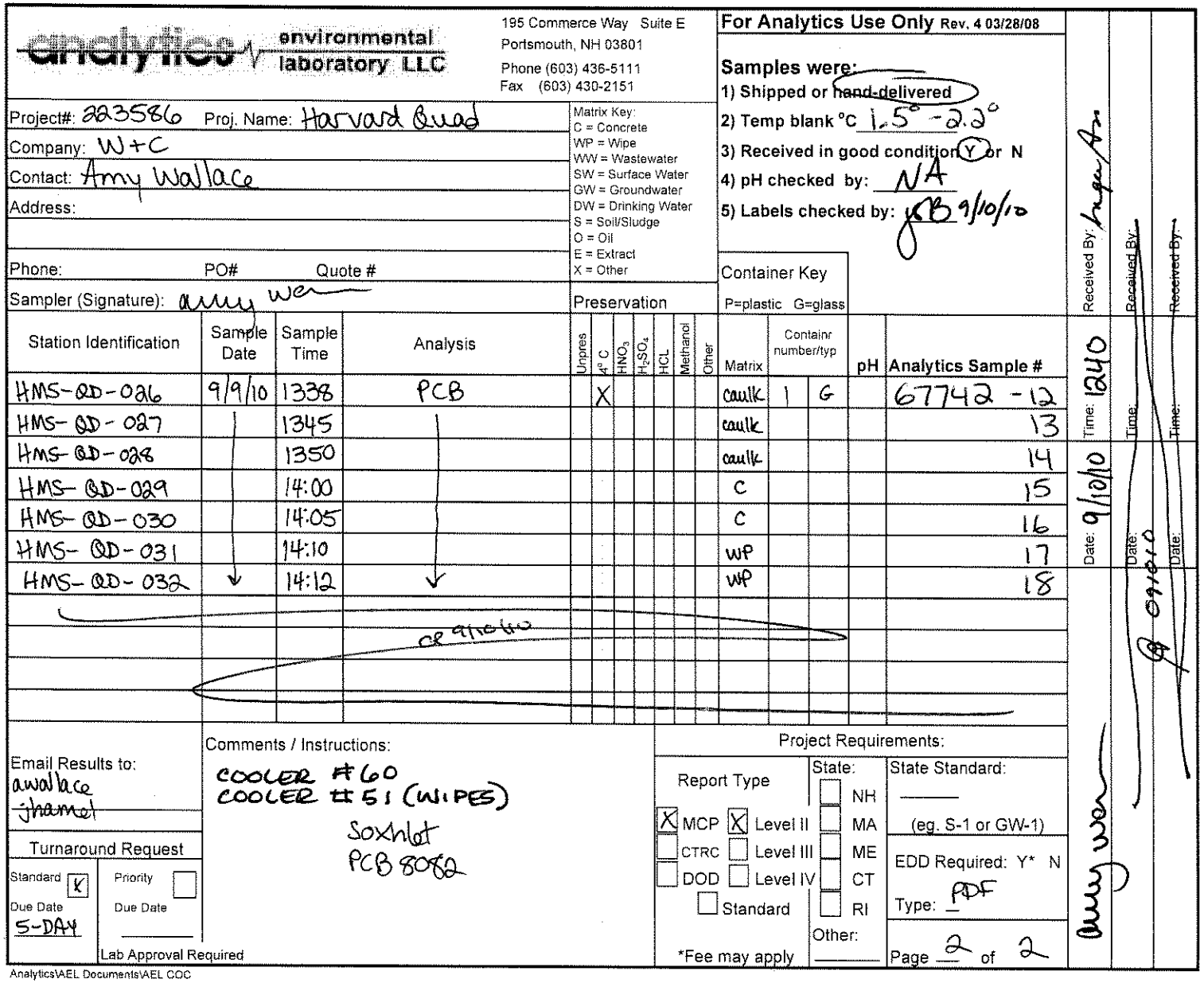
Analytics\AEL Documents\AEL COC

Chain Of Custody Form



analytics environmental laboratory LLC

195 Commerce Way Suite E
Portsmouth, NH 03801
Phone (603) 436-5111
Fax (603) 430-2151

For Analytics Use Only Rev. 4 03/28/08

Samples were:
1) Shipped or ~~hand-delivered~~
2) Temp blank °C 1.5° -2.2°
3) Received in good condition (Y) or N
4) pH checked by: NA
5) Labels checked by: KB 9/10/10

Received By: Amy Wa Time: 1240
Received By: Date: 9/10/10
Received By: Date:

Project#: 223586 Proj. Name: Harvard Quad
Company: W+C
Contact: Amy Wallace
Address:
Phone: PO# Quote #
Sampler (Signature): Amy Wa

Matrix Key:
C = Concrete
WP = Wipe
WW = Wastewater
SW = Surface Water
GW = Groundwater
DW = Drinking Water
S = Soil/Sludge
O = Oil
E = Extract
X = Other

Container Key
P=plastic G=glass

Preservation

Station Identification	Sample Date	Sample Time	Analysis	Unpres	4° C	HNO_3	H_2SO_4	HCL	Methanol	Other	Matrix	Containr number/typ		pH	Analytics Sample #
HMS-QD-026	9/9/10	1338	PCB		X						caulk	1	G		67742 -12
HMS-QD-027	↓	1345	↓								caulk				13
HMS-QD-028		1350									caulk				14
HMS-QD-029		14:00									C				15
HMS-QD-030		14:05									C				16
HMS-QD-031		14:10									WP				17
HMS-QD-032	↓	14:12	↓								WP				18

OR 9/10/10

Email Results to:
awallace
~~jhamel~~

Turnaround Request
Standard [X] Due Date 5-DAY
Priority [ ] Due Date
Lab Approval Required

Comments / Instructions:
COOLER #60
COOLER #51 (WIPES)
Soxhlet
PCB 8082

Project Requirements:

Report Type
[X] MCP [X] Level II
[ ] CTRC [ ] Level III
[ ] DOD [ ] Level IV
[ ] Standard
*Fee may apply

State:
[ ] NH [ ] MA [ ] ME [ ] CT [ ] RI
Other:

State Standard: ——— (eg. S-1 or GW-1)

EDD Required: Y* N
Type: PDF

Page 2 of 2

Amy Wa

Analytics\AEL Documents\AEL COC

ANALYTICS SAMPLE RECEIPT CHECKLIST

analytics environmental laboratory LLC

AEL LAB#: 67742 | COOLER NUMBER: 60+51(wipes)

CLIENT: Woodard | NUMBER OF COOLERS: 2

PROJECT: Harvard Quad | DATE RECEIVED: 9/10/10

A: PRELIMINARY EXAMINATION: | DATE COOLER OPENED: 9/10/10

1. Cooler received by(initials): IA | Date Received: 9/10/10

2. Circle one: Hand delivered (If so, skip 3) | Shipped

3. Did cooler come with a shipping slip? Y | (N/A)

3a. Enter carrier name and airbill number here: _____

4. Were custody seals on the outside of cooler? Y | (N)
How many & where: _____ Seal Date: _____ Seal Name: _____

5. Did the custody seals arrive unbroken and intact upon arrival? Y | (N/A)

6. COC#: N/A

7. Were Custody papers filled out properly (ink,signed, etc)?	(Y)	N
8. Were custody papers sealed in a plastic bag?	(Y)	N
9. Did you sign the COC in the appropriate place?	(Y)	N
10. Was the project identifiable from the COC papers?	(Y)	N

11. Was enough ice used to chill the cooler? (Y) N | Temp. of cooler: 1.5° - 2.2°

B. Log-In: Date samples were logged in: 9/10/10 | By: CP

12. Type of packing in cooler(bubble wrap, popcorn)	(Y)	N
13. Were all bottles sealed in separate plastic bags?	Y	(N)
14. Did all bottles arrive unbroken and were labels in good condition?	(Y)	N
15. Were all bottle labels complete(ID,Date,time,etc.)	(Y) CP 9/10/10	(N) - No times listed
16. Did all bottle labels agree with custody papers?	(Y)	N
17. Were the correct containers used for the tests indicated:	(Y)	N
18. Were samples received at the correct pH?	Y	(N/A)
19. Was sufficient amount of sample sent for the tests indicated?	(Y)	N
20. Were bubbles absent in VOA samples?	Y	N/A

If NO, List Sample ID's and Lab #s: _____

21. Laboratory labeling verified by (initials): JKB | Date: 9/10/10

APPENDIX B – AIR MONITORING PLAN

Airborne particulate matter (PM) consists of many different substances suspended in air in the form of particles (solids or liquid droplets) that vary widely in size. Inhalation hazards are caused if the intake of these particles includes intake of vapors and/or contaminated dust. Particles less than 10 micrometers in diameter (PM-10), which include both respirable fine (less than 2.5 micrometers) and coarse (less than 10 micrometers) dust particles, pose the greatest potential health concern because they can pass through the nose and throat and get into the lungs.

During the performance of the caulking, concrete, and potentially soil removals at the > 50 ppm PCB caulking area (west of the Goldenson building), particulate matter in the form of potentially PCB-affected dust may be generated.

As indicated in the plan, the main dust control mechanism to be employed on the project will be the use of engineering controls (e.g. wetting) and personal protective equipment (PPE). In addition, particulate air monitoring will be conducted at the perimeter of the active work areas to determine if fugitive dust particles are present in the ambient air at the work area perimeter during active removal activities. A direct-reading particulate meter will be used to monitor airborne particulate concentrations during site activities. Particulate concentrations shall be utilized as an indirect indicator of exposures to on-site receptors.

Dust concentrations will be measured using a suitable real time aerosol particulate monitor capable of determining ambient air fugitive dust concentrations to 0.001 milligrams per cubic meter (mg/m^3). Air monitoring shall be conducted while active removal activities are occurring and at a frequency of one reading per two hours of activities. Air monitoring equipment will be operated by the Site safety officer or by a competent representative under the direction of the Site safety officer. Prior to the active removal actions and at periodic points during the project, air monitoring readings will be recorded to document background particulate matter concentrations. All readings will be recorded on the air monitoring log sheet; example attached.

If visible dust is observed or if total particulate concentrations at the perimeter exceed the action limits (as specified below and incorporating background readings) and are sustained (i.e. greater than 5 minutes), then a temporary work stoppage to employ additional dust suppression techniques to mitigate fugitive dust shall be initiated. If applicable, the dust suppression techniques shall involve the application of a fine mist of water over the area creating the fugitive dust condition. The water shall be applied either by small hand held sprayers, sprinklers, or hose nozzles. The water source for dust suppression activities will be from the building's water supply. In the event that the total of airborne particulate cannot be maintained below the action limit, then work activities shall be ceased until sustained readings are below the action limit or the work zone designation is re-evaluated.

OSHA has published the following permissible exposure limits (8 hour time weighted average) for air contaminants (29 CFR 1910.1000):

Air Contaminant	**PEL (8-hour TWA)**
Total Dust	15 mg/m^3
Respirable Dust Fraction	5 mg/m^3
PCBs (42% Chlorine)	1 mg/m^3
PCBs (54% Chlorine)	0.5 mg/m^3

In addition, EPA has established a National Ambient Air Quality Standard for PM-10 of 0.150 mg/m^3 (24-hr average).

A total airborne particulate action limit has been established for the PCB removal work to be conducted at the Site with consideration of the specific receptors, PCB concentrations, work activities, and OSHA permissible exposure limits. The action limit applies only to air monitoring at the perimeter of the work zone; an action limit has not been set for the active work zones (exclusion zones) as engineering controls will be used within these zones.

Given the setting of the project and the anticipated PCB concentration in dust that may be generated during activities, a conservative action limit of 0.1 mg/m^3 above background will be maintained during site work. Air monitoring at a location representative of background air conditions (i.e. a location upwind of the work area) will be conducted at the same frequency as the monitoring to obtain data representative of real-time background conditions. The action limit will be used to determine if and when additional engineered controls and/or work stoppages would be necessary.

Air monitoring equipment will be calibrated according to manufacturer's specifications. Weather and other site conditions will affect the normal operation of the equipment, which will require routine maintenance. Weather conditions will be noted on daily air monitoring logs. It is expected that dust or other particulate matter will not be a concern on rainy or misty days.

AIR MONITORING LOG SHEET
HARVARD MEDICAL SCHOOL - QUADRANGLE SIDEWALK REPAIR PROJECT

Monitoring Location: ______________________________ **Page ____ of ____**

Date	Time	Dust Level mg/m^3	Temperature ^oF	Weather Conditions	Current Site Activity	NOTES